



60841790R



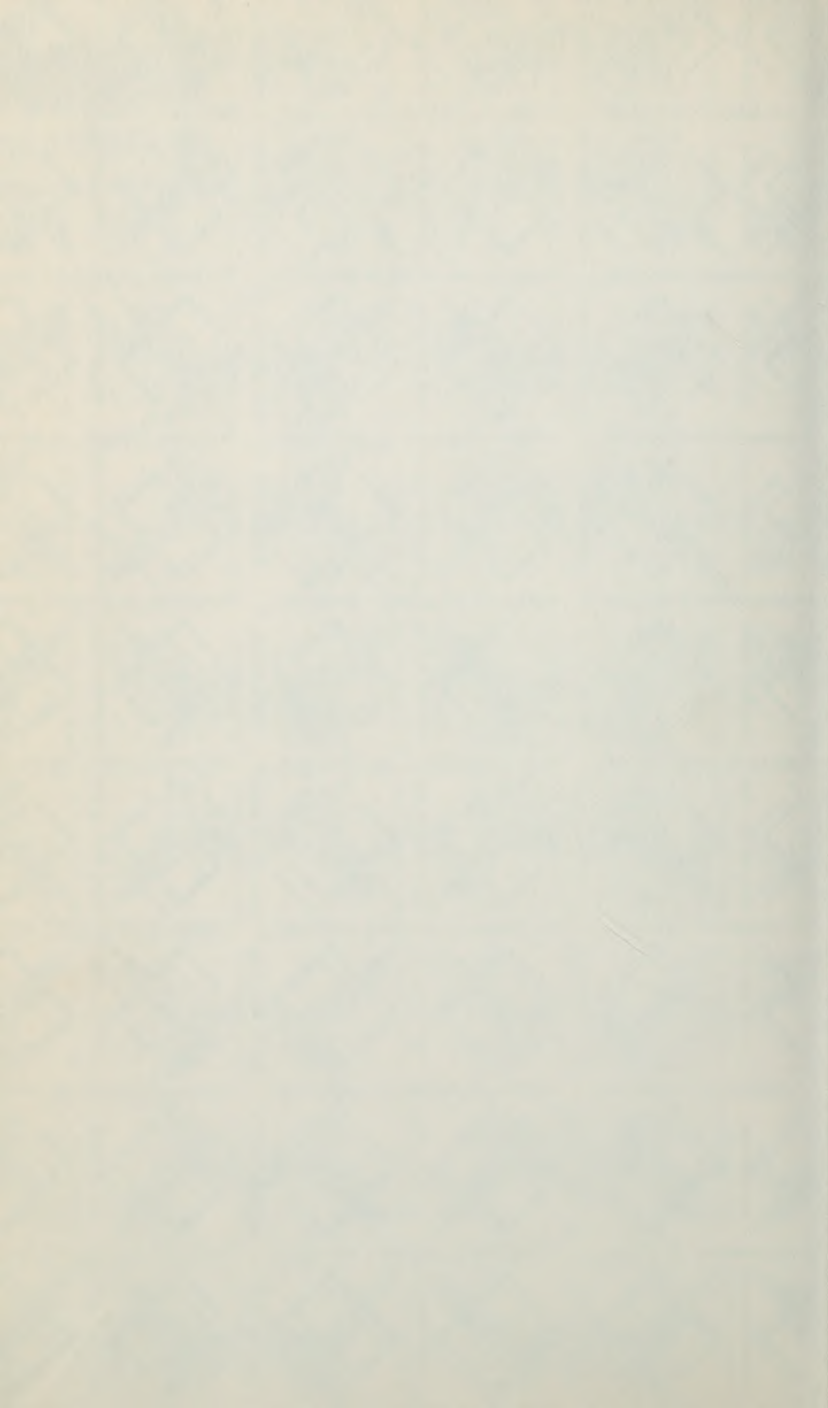
NLM 05032386 2

NATIONAL LIBRARY OF MEDICINE















# VITAL SCIENCE

BASED UPON

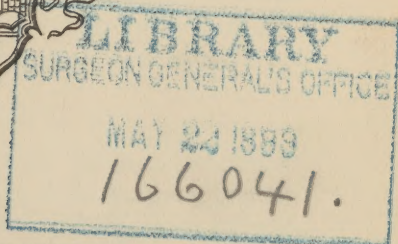
LIFE'S GREAT LAW

THE ANALOGUE OF GRAVITATION

*AGNOSTICISM REFUTED*

BY

ROBERT WALTER, M.D.



PHILADELPHIA

J. B. LIPPINCOTT COMPANY

1899



QH  
W233v  
1899

COPYRIGHT, 1899,  
BY  
ROBERT WALTER.

ELECTROTYPED AND PRINTED BY J. B. LIPPINCOTT COMPANY, PHILADELPHIA, U. S. A.

## PREFACE.

THE underlying thought of this work is, that the living world is a fundamental department of natural existence, and is, therefore, subject to a fundamental law, perfectly analogous to Chemical Affinity and Gravitation. This law is proved by the results to have really been discovered, and its applicability to a Science of Human Health been demonstrated, making the knowledge of vital processes in both health and disease to be as certain as the knowledge of chemical and astronomical processes.

Among the many authorities to whom we are indebted for aid in the development of this system we may mention Professor John Hughes Bennett, M.D., F.R.S.E. From his "Practice of Medicine" we have made some valuable quotations (§§ 21, 30). Professor W. Stanley Jevons, of University College, London, has been equally helpful in the way of general science. This work has verified the following from his "Principles of Science" :

"Whoever wishes to acquire a deep acquaintance with Nature must observe that there are analogies which connect whole branches of Science in a parallel manner, and enable us to infer of one class of phenomena what we know of another. It has thus happened on several occasions that the discovery of an unsuspected analogy between two branches of knowl-

## Preface

edge has been the starting-point for a rapid course of discovery."

The discovery of Life's Great Law, in connection with its fundamental character, and its analogy to Gravitation and Chemical Affinity, has certainly proved "the starting-point for a rapid course of discovery." Where may one find the work that has solved so many and profound problems, cleared up so many mysteries, and given logical proof of so many truths, as does this one? It will be found to embody:

A New Theory of Creation.

A New Theory of the Constitution of Nature. Only John Tyndall seems to have got any glimpses of it.

A New Theory of the Constitution of Man.

A New Theory of Vital Force.

New proof of the Immortality of Man.

Convincing proof that the paradoxes of Scripture and the Golden Rule are scientific and practical truths.

But these are only preparatory to its great object, the establishment of a Science of Human Health that shall prove exact and reliable. Such a science involves a reasonable solution of the great problems of physiology and Medicine, which it is admitted has never before been effected. The Nature of Disease, the *Modus Operandi* of Medicines, and the Law of Cure have at length received a consistent solution, and been developed into a practically successful system.

Life's Great Law is not only the analogue of Newton's law in its nature, character, and results, but in its mode of discovery. Many years of earnest study and personal experiment occasioned a *conception* of truth sufficiently clear to induce laborious investigation,



## Preface

which revealed the fact that several of the accepted doctrines of Modern Science were directly opposed to its inferences. As a consequence the intended publication of this work was suspended for several years.

Mr. Herbert Spencer has been the author who has most pointedly controverted its doctrines. This, at first, was a matter of great surprise to us, for our system is distinctly a system of Evolution. We soon found, however, that many able scientists, such as John Tyndall, Professor Owens, Duke of Argyle, and others, were opposed to Spencer, and we were soon led to doubt that Spencer's system is one of Evolution at all.

This conviction continued to grow upon us until finally Professor Henry Drummond, though earnestly advocating the Spencerian doctrines, in his work, entitled "The Ascent of Man," admits in the last chapter of that work that the system is really one of Involution. It can be called Evolution only by recasting human language, which to meet its necessities Drummond very generously does. "Evolution," he says, "is not to unfold from within; it is to infold from without." No clearer, truer, or more succinct definition of Spencerian Evolution was ever given. It is a system of *infolding*, and requires no other condemnation than the proof of this fact. It is incongruous with itself and with all known truth.

Evolution is the doctrine of Moses and Jesus, of Paul and Luther. It is the most conspicuous, certain, and common fact of every-day existence. We are ourselves its most prominent subjects. But Mr. Spencer is an Involutionist. He rarely uses the word "evolve," but continually employs the term "involve."

## Preface

He has no thought of *unfolding* realities. He is forever intent upon *infolding* them,—intent upon involving all things in the circumstances of their environment.

Environment is the pet term of our modern authors. They even go so far as to credit all progress and all development to its operations. And yet they have never expounded its laws. This work announces and demonstrates the laws of Environment, and gives conclusive proof of the effects of every agency, habit, indulgence, upon the human organism, and of the processes by which these effects are produced.

These laws are secondary to, and logical deductions from, Life's Great Law, and are confirmed by every recurring fact of existence. They are the analogues of Kepler's laws in Astronomy, and of Dalton's in Chemistry. They are Life's practical working laws, four in number, and are denominated by us The Laws of Vital Relation.

Not only do these laws emphasize the truths of the Christian religion, but they come with emphatic endorsement of the Temperance reformation. The one obstacle to the success of the total abstinence idea is false medical practice. They give an overwhelming demonstration of the fallacies of medical as well as social stimulation.

These varied truths have been developed, and the fallacies, especially of Spencerian Evolution, exposed, by insisting upon a careful distinction between Force and Motion, Cause and Occasion, the Force that operates and the Conditions for its operation. It is only by confounding these that the Involution advocates can make any progress. The Correlation and Con-

## Preface

ervation of Energies is admitted, but Mr. Spencer's leading doctrine, the Transformation of Forces, is shown to be nothing more than

"The baseless fabric of a dream."

Even the true theory of clouds and rain is shown to be conspicuously different from the theory advanced by Herbert Spencer and others. If Vital Science has done nothing else, it has given clear, definite, and indisputable evidence of the fallacies and falsities of Spencerian Evolution.

The very large range of application of the principles of this work is the best proof of their truth. To conceive a theory applicable to one subject, which may be varied many times and always be wrong, is a comparatively easy matter. To conceive one theory, however, which is applicable to all subjects,—to discover one law which agrees with all known laws, and from which is deduced still other laws, in perfect analogy with corresponding truths, and which discloses convincing proof of the errors as well as truths of science, of philosophy, and of religion, is an achievement never before condensed into so short space,—or, indeed, into any space. We agree with Mr. Spencer that "philosophy consists in the establishment of congruity . . . down even to the components of every inference and every observation." This work clearly shows that all processes agree with all other processes ; it establishes a universal harmony never before attained.

It is not to be expected, of course, that no error of detail in our work is to be found. Very likely there



## Preface

are many such errors. We can only crave the reader's indulgence if he finds them, and plead the fact that the work has been written in such moments as we could steal from active practice, and so cannot hope it to be at all what it should be. We must, at least persist in the claim that we have uncovered a great truth, which has in it the elements of a mighty revolution; and that in its leading features we have piled proof upon proof to a degree amounting to a very complete demonstration. With these suggestions we send it forth on a mission of mercy to a long-suffering humanity.

ROBERT WALTER.

WALTER'S PARK, PA.

# CONTENTS.

## CHAPTER I.

### DEFINITIONS AND RELATIONS.

SECTION	PAGE
1. Nature, Science, and Logic, and their relations . . . . .	17
2. Nature a process of work—Science studies the process . . . .	17
3. The Facts Observed—Color-blindness . . . . .	18
4. The Facts Inferred—Must be verified—Circumstantial evidence . . . . .	18
5. Science must be practical—How effects are produced; Nature of Causes . . . . .	19
6. Force and Law; otherwise Power and Wisdom; and their relations . . . . .	20
7. Causes and Occasions defined . . . . .	22
8. The Nature of Force . . . . .	23
9. Force and Motion, and their relations . . . . .	24
10. Energy and Motion, and their relations . . . . .	24
11. The Nature of Law—Varied definitions . . . . .	25
12. Law a reality; sustained by Force it is the cause of all things; the Lawgiver . . . . .	26
13. Law must be correctly formulated . . . . .	28
14. Principles defined—Nature an evolution of invisible principles	28
15. The Telescope of Science—All depends upon the point of view—Looking in at the wrong end . . . . .	31
16. Of adhesion to principle—Science based upon principles and Science destitute of principles . . . . .	33

## CHAPTER II.

### THE TWO SYSTEMS—OF THOUGHT AND WORK.

17. The Highway of Thought—Which way shall we go? . . . .	35
18. We choose the forward and outward plan—from Cause to Effect, from invisible to visible, as Nature works . . . . .	36

# Contents

SECTION	PAGE
19. Reason requires a postulate; impossible to reason from facts of observation . . . . .	37
20. Human thought and work must correspond with Divine thought and work—Man thinks as plants grow—Evolution of the invisible causes . . . . .	38
21. The two classes described as exact and inexact by Professor John Hughes Bennett—Exact Science presupposes discovered principles . . . . .	39
22. Bennett's prediction—The importance of finding the seed . .	40
23. The first step towards the discovery—What the seed is like .	41
24. The advantages of the logical method . . . . .	42
25. Why Empirical Science continues . . . . .	43
26. The practical bearings of these thoughts . . . . .	43
27. The conflict as old as the human race—Adam and Eve the first empirical scientists . . . . .	44
28. The Christian system described . . . . .	45
29. By their fruits ye shall know them . . . . .	46
30. The fruits of inductive Science—Authorities quoted . . . .	48

## CHAPTER III.

### EVOLUTION *vs.* INVOLUTION.

31. The universal harmonies of Nature . . . . .	50
32. Is the process one of Evolution or Involution?—Drummond's theories . . . . .	51
33. Drummond's surprising contradictions—Herbert Spencer and the Apostle Paul . . . . .	51
34. The essentials of Christianity involved in this question—The Heredity doctrines of the Bible . . . . .	52
35. Spencer reviewed—Heat and light transformed into sensation and thought disputed . . . . .	54
36. The absurdity of the transformation doctrine—Tyndall <i>vs.</i> Spencer . . . . .	55
37. Spencer's explanation of how tickling is carried on . . . .	56
38. Why he cannot explain how heat, light, etc., generates thought . . . . .	58
39. Spencer's theory of clouds and rain shown to be erroneous . .	59
40. Spencer's theory of the cause of the development of the chick controverted . . . . .	60



# Contents

SECTION	PAGE
41. The Nature of Life reviewed and Spencer's definition refuted	62
42. The contradictions of Spencer's later volumes—His definition of Nerve force . . . . .	64
43. Spencer's opposition to all scientific doctrines on the subject of classifications . . . . .	65
44. His admission of incongruity in his central doctrine . . . .	68
45. Spencer substantially ignores the commonest fact of Life . .	69
45½. Heredity or Environment, which?—The true Evolution defined . . . . .	70

## CHAPTER IV.

### THE GREAT FIRST CAUSE.

46. His existence, relations, and certain inferences to be considered . . . . .	73
47. His existence proved by the consistency of the results, by the failure of Agnostic philosophy, and by the order of universal production . . . . .	74
48. Every Cause anterior to its Effect proves His existence . . .	75
49. Every Cause interior to its Effect—Evolution the true system of Creation—Spencer admits the impossibility of Creation by external power . . . . .	76
50. The invariable processes of existence . . . . .	78
51. The invisible God and the God manifest of Revelation . . .	79
52. The invisible Force and the Force manifest of Science . . .	80
53. The Relations of the Invisible to its manifestations in both Science and Religion—Heredity and not Environment the source of all things . . . . .	81
54. Necessary Inferences from the admitted facts—All real causes are invisible . . . . .	82
55. All real causes are the comprehensive equals of their effects .	84
56. Mr. Spencer's doctrine of the Great First Cause and its legitimate inferences—He is either Infinite Mind or he is a very Little First Cause . . . . .	84
57. He is the Source of all Life and of all Mind . . . . .	87
58. He is described by the things he has created—He is Life, Mind, Wisdom, Intelligence, Power . . . . .	88
59. God declared in Man—He works according to plan . . . .	89
60. Infinite Intelligence and not blind force . . . . .	90

# Contents

SECTION	PAGE
61. The summing up of the conclusions . . . . .	91
62. Nature a Trinity, the product of a trinity of Forces . . . .	92
63. The Unchangeable God the cause of all changes—The principle explained—The power and value of prayer . . . .	94
64. The Unchangeable is unchangeable . . . . .	95

## CHAPTER V.

### CREATION; OR, HOW THE WORK IS DONE.

65. The Processes of Creation—Paul's doctrine . . . . .	99
66. Present processes describe past processes—Rom. i. 20 . . .	101
67. Science confirms Revelation that the visible manifests the invisible . . . . .	101
68. Wisdom, Power, and Requisite Materials the elements of Creation . . . . .	102
69. Distinguished in scientific phraseology as Law, Force, and Matter . . . . .	103
70. Law and Force inseparable—both invisible and unchangeable, while matter is plastic . . . . .	104
71. These principles applied to the growth of human beings—The relations of fish and brains . . . . .	106
72. Causes, Occasions, and Results defined and distinguished . .	106
73. Mechanical and chemical illustrations . . . . .	108
74. Illustrations in the Vital realm . . . . .	109
75. Causes, Processes, and Effects, and their relations . . . .	111
76. Creation through Force intelligently or persistently directed .	112
77. Force persists in three directions . . . . .	113
78. The Process is the outworking of power . . . . .	113
79. A knowledge of the directing principle the important thing .	115
80. Creation by Law, declared by Revelation and confirmed by Science . . . . .	115
81. Nature's primal law—The Law of Light—Chemical Affinity .	116
82. The Law of the Firmament—Gravitation . . . . .	118
83. Life's Great Law; and the Trinity of Nature . . . . .	118
84. This classification a reality and not a subjective conception .	119
85. Every effect in Nature due to one or other of these causes .	120
86. The Creative Week—All results traceable to one or other of Nature's intrinsic forces, directed by its proper law . . .	121
87. These Laws applied in fourth day, fifth day, sixth day, suggestive of special creations . . . . .	123

# Contents

## CHAPTER VI.

### THE COSMOS; OR, THE CONSTITUTION OF NATURE.

SECTION	PAGE
88. Force, Motion, and Matter distinguished . . . . .	124
89. The great error of confounding Motion or Energy with Force . . . . .	124
90. Force, passive and active—primary and secondary . . . .	126
91. The error of placing Gravitation and Chemical Affinity in the same class with Heat and Light . . . . .	127
92. Force a trinity, not a unity . . . . .	128
93. Forces are causes and always invisible—Motions are effects and usually observable . . . . .	129
94. What these forces have done . . . . .	130
95. How to discover the Forces of Nature . . . . .	131
96. The Search for Vital Force . . . . .	133
97. Life only from Life—The less cannot produce the greater— Causes always internal; occasions external . . . . .	135
98. The indestructibility of Life—Life returns to its Source, as Spencer admits . . . . .	138
99. The Laws of Nature correspond in classification to its Forces—They are primary and secondary . . . . .	140
100. Motion or Energy is Force in action—Why Force appears as Motion . . . . .	141
101. Occasions distinguished from Causes—Conditions distin- guished from Forces . . . . .	144
102. Tyndall's explanation—No real transformation . . . . .	146
103. Forces reproduce their positions . . . . .	147
104. Sunlight a motion, not a force—an occasion of growth, not a cause . . . . .	147
105. The admitted confusion of the accepted theories . . . . .	149
106. Forces categorically distinguished from Motions by reverse processes . . . . .	149
107. The true position of Gravitation and Chemical Affinity proved by reverse processes . . . . .	150
108. The secondary cannot be correlated with the primary . . .	151
109. Transforming the baser forces into Life as impossible as transmuting the baser metals into gold . . . . .	152

# Contents

## CHAPTER VII.

### VITAL FORCE: ITS NATURE AND SOURCE.

SECTION	PAGE
111. The organic world a fundamental department of Nature—Its force fundamental . . . . .	153
112. All things the product of Force—The two classes of Force individualized . . . . .	154
113. Vital Force returns to the Source whence it came . . . . .	155
114. Vital Force not transformed physical and chemical forces—Le Conte reviewed—Which is <i>cause</i> and which <i>condition</i> . . . . .	156
115. Herschel's Rules employed to demonstrate the sources of vital development . . . . .	157
116. Vital Force from Heat, Light, etc., reviewed . . . . .	160
117. Food in its relations to Vital Force . . . . .	161
118. Necessity for sleep proves that Vital Force is inherent . . . . .	162
119. Le Conte's illustration of how Light becomes Vital Force, controverted . . . . .	162
120. Le Conte's theory of clouds and rain also controverted . . . . .	163
121. The pivotal doctrine of Evolution—Whence the power that develops? . . . . .	165
122. The power that elevates Man . . . . .	168
123. Can the less include the greater?—Is the Creator a Great First Cause or a Little First Cause? . . . . .	168
124. Whence the sustaining power of Life? . . . . .	170
125. The Source of Vital Force—The Reproduction theory . . . . .	170
126. Reproduced from the Unconditioned Reality or Unknowable Realm—The Occasion mistaken for the Cause . . . . .	171
126½. Reproduction results from Desire—All growth the answer to Desire . . . . .	173
127. Objections answered . . . . .	177
128. The immortality of Life follows . . . . .	178
129. How to prolong earthly life . . . . .	180

## CHAPTER VIII.

### THE EGO; OR, THE CONSTITUTION OF MAN.

130. The relations of Man to the Universe restated . . . . .	181
131. Force inherent in the nature of things—Vital Force inherent in living things . . . . .	182



# Contents

SECTION	PAGE
132. An inherent force a primal force—Vital force a superior force . . . . .	183
133. All causes invisible—The Ego defined—The Trinity of Man . . . . .	184
134. The healing power and its source—Employs in its work all principles beneath it—Proof of Vital Force . . . . .	185
135. The healing power distinguished from working power . . . . .	188
136. A new classification of Vital Force—Inherent capacity and available power . . . . .	188
137. The elements of long life . . . . .	189
138. Inherent Vital Force not a lump-sum—Medical Science <i>vs.</i> The Sermon on the Mount . . . . .	190
139. The proportions of the combination the important thing . . . . .	192
140. This classification of Vital Force compared with Spencer's classification of physical force . . . . .	194
141. The Great Delusion . . . . .	195
142. The power that a man is conscious of possessing is the power that is going from him—Unconscious power the real power . . . . .	196
143. The living organism compared to an electric battery . . . . .	198
144. The Storage Battery a better illustration . . . . .	199
145. Long life inversely related to great vigor—Examples . . . . .	200
146. Vital Force is our inheritance—Energy is force in process of expenditure . . . . .	201

## CHAPTER IX.

### LIFE'S GREAT LAW.

#### *The Analogue of Attraction of Gravitation.*

147. Success requires both Stability and Flexibility . . . . .	204
148. These are secured by immutable laws, in response to ever-changing conditions . . . . .	204
149. Law to be valuable must be formulated—Newton's formula—What Newton discovered . . . . .	206
150. Formula of Life's Great Law—The only merit of the Author . . . . .	207
151. The analogy perfect—The value of analogy—Jevons quoted . . . . .	208
152. The Telescope of Science employed to illustrate Nature . . . . .	209
153. The Universality of Life's Great Law . . . . .	209

## Contents

SECTION	PAGE
154. Lionel Beale and bioplasm . . . . .	210
155. The cause of Vital movement . . . . .	211
156. All protoplasm alike—Drummond's quotation from Huxley . . . . .	213
157. A materialist's description quoted . . . . .	214
158. Illustrations from every-day life . . . . .	216
159. Nature and origin of Evil . . . . .	217
160. General perversions of Vital instincts . . . . .	218
161. Life and Mind, and their relations—Ramsey's Applied Anatomy quoted . . . . .	219
162. How drugs produce effects . . . . .	221
163. The successes and failures of all forms of treatment ex- plained—Powwowing, Incantations, Faith-Cure, Mind- Cure, Regular Medicine, Homœopathy, Sympathetic pow- ders, Sir Humphry Davy's Thermometer-Cure . . . . .	222
164. The power and the process always the same . . . . .	223
165. Life's Great Law enforced by vital power, the true principle of Life and the source of all vital operations, whether of health or disease . . . . .	224

## CHAPTER X.

### ENVIRONMENT ; OR, THE LAWS OF VITAL RELATION.

166. The Influence of Environment heretofore a subject of specu- lation—The laws of Environment to be expounded . . . . .	227
167. We must exist before we can be influenced by Environment —Life the product of inheritance—Our Laws are laws of Life . . . . .	228
168. Man the victim of delusions—Some have been exposed— There are worse to follow . . . . .	229
169. The four laws named—The Law of Action—The Law of Power—The Law of Effects—The Law of Vital Accom- modation . . . . .	229
170. The Law of Action formulated—Dictionary definitions of Action—Does Medicine act—food, drink, clothing, vomit- ing, purging . . . . .	229
171. <i>Causes</i> and <i>Occasions</i> again distinguished—it is by con- founding them that the most absurd doctrines are enabled to survive . . . . .	231
172. What difference does it make which acts, the medicine or organism, as long as we get the action . . . . .	232

# Contents

SECTION	PAGE
173. The organism acts because it thinks—We change the action by changing thoughts . . . . .	234
174. Nature of disease explained in the same way . . . . .	234
175. The Law of Power formulated—Herschel's Rules again employed—The <i>modus operandi</i> of medicines demonstrated . . . . .	235
176. Medicines cure diseases by producing diseases—The effects of tonics and stimulants . . . . .	236
177. The Law of Effects formulated . . . . .	237
178. Illustrations—Anæsthesia—Alcohol—Opium—Cocaine . . . . .	238
179. The power of habit explained—Alcohol, tea, coffee, tobacco—Try it and prove it . . . . .	240
180. The same principles apply to all tonics, stimulants, anodynes, chologogues . . . . .	241
181. Further proof of the law—The energy of medication shows why all medicines are poisons . . . . .	242
182. Why medicines act on some organs and not on others . . . . .	244
183. The law applies to every act, habit, indulgence, of the individual—Applies to horses . . . . .	244
184. Why people must sleep—This law explains everything—Dancing, eating, drinking—The Water-Cure—The Cold Bath . . . . .	245
185. This law the child of the ages—first recognized by the Great Teacher—Recognized in Medicine one hundred years ago . . . . .	247
186. The paradoxes of Scripture and the Golden Rule explained—The Law of Similars . . . . .	247
187. The Law of Vital Accommodation—Nature's Balance-Wheel—The reforms of the day must be subject to this law—Reform needed rather than revolution—Man the product of evolution . . . . .	251

## CHAPTER XI.

### THE MODUS OF MEDICINES ; OR, DO THEY STRENGTHEN YOU ?

188. The term Medicine made to include all agencies employed to improve health or cure disease . . . . .	254
189. Newton's demonstration that the real is the opposite of the apparent applies to Medicine—The Law of Effects . . . . .	255

# Contents

SECTION	PAGE
190. The facts of medical practice . . . . .	257
191. Why not take a drink? . . . . .	258
192. Will they strengthen us? . . . . .	259
193. Whence comes the increased power? . . . . .	260
194. The drunkard's organism in evidence—Causes confounded with Occasions . . . . .	261
195. Hirschel's rules again applied . . . . .	263
196. A further test—The drink-and-drug habit explained . . .	263
197. Vital Energy again shown to be opposed to vital power . .	264
198. Stimulants and tonics increase the consumption of food—So does labor— <i>Cui bono?</i> . . . . .	265
199. Life depends upon what a man has, not upon what he expends	266
200. The Great Delusion once more . . . . .	267
201. All violent appliances stimulating . . . . .	268
202. The Water-Cure and its effects—Illustrative cases . . . .	269
203. The recuperative influence of the ball-room considered— How sleep recuperates . . . . .	271

## CHAPTER XII.

### THE NATURE OF DISEASE.

204. The danger of dealing with a thing whose nature we do not understand . . . . .	274
205. Disease a natural process illustrated by other natural pro- cesses . . . . .	274
206. The force of disease is the force of health, and both are Vital Force . . . . .	275
207. Professor Wood's confession that disease is an invisible process of life . . . . .	277
208. Quain's predictions—right yet wrong . . . . .	278
209. The processes of Life described—disease distinguished from health . . . . .	280
210. Disease-germs and their work—Importance of cleanliness .	281
211. The sources of impurities . . . . .	282
212. Professor John Hughes Bennett's theory commended and extended . . . . .	285
213. Causes again distinguished from Occasions . . . . .	286
214. Disease defined—Irritation its first obvious process . . . .	288



# Contents

SECTION	PAGE
215. The delusive nature of irritation—Professor Wood quoted —Irritants are stimulants, and <i>vice versa</i> . . . . .	288
216. The second stage of Disease—Congestion . . . . .	291
217. Obstruction the great cause of congestion—Prevailing methods criticised . . . . .	292
218. The great need is Rest—Rest of heart, lungs, liver, kidneys, stomach—The danger of heart tonics . . . . .	295
219. The destructive results of predigested foods . . . . .	296
220. The work of the vital organs—How to rest them—The philosophy of bleeding . . . . .	297

## CHAPTER XIII.

### THE LAW OF CURE.

221. Is there such a law?—Strange that poisons should cure dis- eases . . . . .	300
222. The solution of the problem involves careful distinction between Causes and Occasions . . . . .	301
223. All vital causes hereditary—Environment the source of occasions . . . . .	301
224. Two opposing methods of curing diseases . . . . .	303
225. The Cure may be worse than the disease . . . . .	305
226. Medicine the <i>occasion</i> not the <i>cause</i> of vital action . . . .	306
227. How large shall the dose be? . . . . .	307
228. The Regular and Homœopathic schools contrasted . . . .	308
229. Both schools based on the curative power of drugs—Hahne- mann's law . . . . .	309
230. Medicine is matter, not spirit—What it does—Law of Similaris . . . . .	311
231. Medicines opposed to disease . . . . .	314
232. The negative plan of curing diseases . . . . .	315
233. Health by living healthfully the true idea . . . . .	316
234. The testimony of Dr. Isaac Jennings . . . . .	317



# VITAL SCIENCE.

---

## CHAPTER I.

### DEFINITIONS AND RELATIONS.

“The confirmation of theories rests upon the compact adaptation of their parts, by which, like those of an arch or dome, they mutually sustain each other and form a coherent whole.”—BACON, as quoted by Herschell.

I. NATURE is the book we read ; Science is the interpretation of what we read ; while logical common-sense is the process of reading it. A magnificent volume by an Omnipotent Mind, in language that is divine, needs to be translated into human language, and simplified to the capacities of the human understanding.

In Nature, Science, and Logic, we have object, subject, and process, all indissolubly connected, illustrating the same principles and tending to the same conclusions. Nature is the thing that really is ; Science is the description of how it is ; while logical reasoning is the process of the description.

2. Nature exists both in mind and in things. We use the term in the larger sense to include universal Nature, made up of causes and effects, and their mutual relations. For Nature is a process of work, just as truly as she is a product ; and what the process is, in order that we may predict or determine the result,

## Vital Science

it is the work of Science to discover and disclose. How Nature does her work—that is, how she grows a plant, produces fruit, builds a man, makes health or disease, in order that we may take advantage of and control the doing—is the work before us.

3. Science is a mental picture of both process and product. It is made up of facts; Nature is made up of facts. It is based upon principles; Nature is the product of principles. There are *facts observed* and *facts inferred* in both Nature and Science; and it is the work of Science to establish their existence and trace their connections.

THE FACTS OBSERVED are known as phenomena, the things we see and feel, the symptoms, as the physician would say, constituting the apparent world. But all experience proves that the apparent world is not the real world. It is the world in which man shares his knowledge with the brute, and upon which all men are on the same level, or if there are differences, they are too often in favor of the more ignorant. Color-blindness, both physical, intellectual, and moral, is a sad fact of humanity.

4. THE FACTS INFERRED.—Man is possessed of Reason, whose first work is to infer the invisible from the visible,—the unknown from the known. Observation has already shown that phenomena are effects; reason declares that effects are necessarily the product of causes; and the *facts inferred* become at once the great necessity of Science. (§ 18.\*) They are value-

---

\* The sections in this work are numbered for ease of reference, and these references are frequently made to point the reader to further discussions of the subject.

## Definitions and Relations

less, it is true, until carefully verified; but it is really this verification which makes them to be facts of inference. They would seem to be the circumstantial evidence of Science, and hence the most reliable form of scientific knowledge.

5. Nature, therefore, is made up of *causes* and *effects*, constituting the *Facts Inferred* and the *Facts Observed*, and it is the work of Science to trace by logical processes the relations between these classes, showing what causes produce what effects, in order that we may obviate, produce, control, or, at least, explain the effects. Science to be valuable should be practical. Its province is to confer power; knowledge is power. It will be found to be something more than speculations regarding natural phenomena in order to satisfy a natural curiosity. The Science here proposed is a logical development of discovered truths, from which has been deduced a system of health that has proved successful and exact in practice to an unexampled degree. By way of development of this system we proceed to consider,—

*How effects are produced.* Only through the operation of causes. We propose the use of words in their legitimate meanings, and, turning to the dictionary for definitions, we learn that an effect is “that which is effected by an efficient cause;” while a *cause* is “that by the power of which an event or thing is,” “a principle from which an effect arises.” (Century Dictionary.) We are, therefore, justified in making the emphatic statement, to be herein fully illustrated and established, that *every cause is a power or principle* (§§ 54, 70); and this we shall soon learn (the Great First Cause alone



## Vital Science

excepted) is constituted of Force under direction of Law. (§ 14.) In every department of natural existence work is being performed, and the human mind has never yet conceived a means of doing work, producing effects, performing functions, except by the use of Force, mental or physical. Mr. Herbert Spencer very properly bases his system upon Force as "an ultimate of ultimates,"—the basic principle of natural existence. Who can doubt that the power to do always precedes the thing done?

6. Phenomena could not exist except through the forces of production. But these forces could accomplish nothing unless directed to their accomplishment. The process is Motion, the product is Matter, and both of them exist in accordance with Law. If it were possible to conceive that Force were undirected, or irregularly directed,—if water were attracted now downward, then upward, and anon were destitute of direction; if steam represented contraction as well as expansion; and so of all forces if they were irregular in their operations, how could any work be done? If the universe were the product of chance, indeed of an infinite succession of chances, the orderly arrangement of its parts becomes the most stupendous miracle ever presented for human contemplation.

But it is not the product of chance; it is the product of Force under direction and control of Law. (§ 69.) It is the force of Gravitation under its proper law that holds the world in place and produces all astronomical phenomena. It gives power to air and water to operate our mills. Water-power is gravity-power. So is wind-power. So of other mechanical contrivances,

## Definitions and Relations

the power that makes them capable of doing work is the force of gravity under its proper law. It is gravity that floats the balloon, holds the railway train to its track, makes the ship to float or sink. In all these cases there is but one force under control of the one law (§ 86), all other elements of the result consisting simply and only of the *occasion* or *condition* for the operation of the force. (§§ 73, 101, 114.) Natural law is inseparable from natural force; the wisdom of direction is the very essence of natural power. Given Force directed by Law, or Law sustained by Force, as you choose, and what further is needed to account for and explain all phenomena?

The discovery of the Law has in every age accomplished just this result. How could it account for and explain the phenomena unless it was an important agent in the production of the phenomena? If Law is not the directing principle of Science, what, then, is its function? And if it has no important function, how can its discovery be of such great consequence, as Archimedes, Newton, Lavoisier, and others have proved? Can there be anything more absurd than to urge, as some modern authors do, that "Organic form is the result of motion in direction of least resistance." According to this doctrine, Paul and Luther, and the martyrs and sages of all ages, were "modes of motion" proceeding in direction of least resistance. Or, if it be claimed that they only operated as men in direction of great resistance, while their own production was due to "motion in direction of least resistance," we have the real Spencerian doctrine, of great things out of small, of motion out of inertia, of Life out of no

## Vital Science

Life, of a universe out of a very Little First Cause. On the contrary, organic form is the product of Force, and all Force operates under direction and control of Law; it is the Law that determines the form of the motion. Every tree that grows, grows in opposition to gravity, which is the direction of greatest resistance.

We would emphasize the truth also, that the work done describes the quality and degree of the power employed. There is no other measure of power known to man than the work it does. There is no means of distinguishing the kind of power employed but the function it performs. The man who asserts that vital function is the product of physical force draws on his imagination for his facts.

Let it be noted, also, that the doing of the work involves the expenditure of the power. By expenditure we mean, not its loss or destruction, but its change of position. (§ 127.) Perpetual motion, spontaneous generation, something out of nothing, is no part of true science. *Ex nihil nil fit*. Every cause has the power to produce its effect; but when the effect has been produced, the power that produced it has been transferred to the effect. (§§ 49, 95.) It is impossible that both can possess the same power at the same time.

7. CAUSES AND OCCASIONS.—These must not only be distinguished from each other, but the distinctions must be carefully maintained, if our processes would lead to correct conclusions. If a *cause* is "that by the *power* of which a thing is," an *occasion* is not also the *power*. On the contrary, the dictionary tells us that an *occasion* is "an accidental cause." It is not the power by which the thing is done, but the incentive

## Definitions and Relations

or condition for the operation of the power. (§§ 101, 126½.) To *occasion* means "to induce" or "to bring about." It is a remarkable fact that every result in Nature involves both the *cause* and the *occasion*; in other words, involves the *power* that operates and the *condition* for its operation. It is by confounding these that the most erroneous conclusions are reached. Mr. Spencer confounds them. (§ 89.) Professor Joseph Le Conte, in order to sustain the so-called evolution doctrine, transposes them. (§ 114.) This subject, though one of the most important to all true science, and especially to a Science of Human Health, must be deferred until we reach its application in the solution of the numerous problems which present themselves.

8. THE NATURE OF FORCE.—To condense into a paragraph a description of Force, and to define it in a phrase, preparatory to a more elaborate investigation in Chapter VI. of its nature and work, let us say, It is intangible and invisible, known only by its effects. We know that it is under the direction and control of law, and is, therefore, persistent yet flexible, continuous yet changeable; and while elusive, fickle, and dangerous in the highest degree when we fail to obey its laws, yet as certain in its operations under the direction of law as the throne of God is immutable. It is universal, omnipresent, eternal; and, as Newton demonstrated it, "every particle of matter in the universe" is a storehouse of it. To give to it its broadest signification, let us say, *Force is that which does work.* (§ 76.) What kind of work? The kind which the Law directs. In one hour it warms us; in the next it carries us to our homes or dumps us in the ditch. It holds us securely

## Vital Science

on the mountain-top or dashes us over the precipice. It shelters us from the storms of winter or explodes us into ten thousand fragments. How necessary that we should learn and obey the Law, and be prepared to supply the conditions which determine what the result shall be!

9. FORCE AND MOTION.—The natural distinction between these must also be maintained if we would have science. On this subject we can but appeal to the intelligent common-sense of every reader. Force is the power, and motion is the immediate product; force is the cause, and motion is the effect; motion is the work, and force, under direction of law, is the power that does the work. Ordinarily it were a work of supererogation to urge these self-evident truths, and were it not that the most important and revolutionary of modern systems of thought, obtains its whole significance, as we shall see, by confounding Force and Motion, Cause and Effect, in the most arbitrary and absurd fashion (§§ 42, 89), we should not feel justified in calling attention to the subject. It is inconceivable that Mr. Herbert Spencer is wholly unconscious of his transgression of proprieties in this respect; we can here simply call attention to the confusion which he introduces into the subject, and shall in the proper place have occasion to review his positions more fully. (§ 89.)

10. ENERGY AND MOTION.—These would seem to be identical. Scientists use the terms interchangeably. Whenever matter changes position or condition, as, for instance, when water runs down-hill, or coal is burnt, or gunpowder explodes, neither the material,



## Definitions and Relations

nor the force inherent in the material, is lost or destroyed, the matter has simply passed to a new state, carrying its forces with it; but in the process of doing so it has developed an energy which men have for ages been learning to appropriate for the doing of work. It is Energy or Motion that does work,—performs function; but it is Force that produces the Energy; and while the Energy is lost in the work done, the Force has only changed position. Force, whether mechanical, chemical, or vital, is persistent, eternal, immortal, inherent in the nature of things; it is only the Energy or Motion, developed from the Force as it falls to lower levels, that is conserved or transformed, as eminent authorities agree, and as we shall clearly show in Chapter VI.

II. THE NATURE OF LAW.—The common-sense view of Law has already been indicated, but it may be well here to more definitely and categorically define what is meant by the term. As applied in Science it is described as “a proposition which expresses the constant and regular order of certain phenomena, or the constant mode of action of a force.” (Century Dictionary.)

No one can, we think, doubt the correctness of this definition. It is expressly limited so as to come within the facts of observation, without importing into it any theory of its existence. Agnostic Science prides itself on not knowing too much, and is thus especially careful to infer as little as possible. But it has inferred the existence of Force, which it never saw, and of Law which is the complement and counterpart of Force, and without which Force would be valueless; why

## Vital Science

not carry the inference one step farther, and infer what seems to be a necessity by every principle of reason, analogy, and common-sense,—viz., the existence of the Lawgiver? We assert the applicability to Science of the primal definition of Law, that it is “a rule of action prescribed by authority.” (Century Dictionary.) In other words, the authority *prescribes* the action. The first definition above given restricts it to the work of *describing* the action of force,—of telling what has been done; a definition which is true as far as it goes. But does it go far enough? Whatever we know of Law, by association with men and things, leads us to view it, not as a declaration of what has been done, but as defining what shall be done, and especially how it shall be done. It is not the province of the Law to *describe* what the citizen has done, nor even what he may do, but to *prescribe* the terms on which he may act. He may build a residence, but, if in the city, he must take out his permit; he may peddle goods, but he must have a license to do so; he may hunt or fish at the proper season; may even kill or cure, if he has the proper authority.

12. Again, it is asserted that Law has no positive existence, but is only “a mode of motion,” illustrating the sequence of effects, and is, therefore, the *result* of the peculiar order of things observed. We inquire, if Law is the *result* of the operations of Nature, what is the cause of these operations, and especially of this order? Again, how does the discovery of the Law enable us to predict with certainty what will happen under given circumstances if it is not the Law which causes it to happen? (§ 94.) Again, if Law is the

## Definitions and Relations

product of Evolution, why does not the Law change as all other products of Evolution change? The Law of the Lever, for instance, has been known for more than two thousand years, and if it be the product of Evolution, some change, however slight, must be at length observable. But no one suspects such a thing. Law is unchangeable because it is the edict of an unchangeable Lawgiver; if it were the result of Nature's processes, it would illustrate the same progress which Nature everywhere shows, and be continually changing, slightly, it may be, but certainly. Unchangeable, it produces all changes in answer to the ever-changing conditions of natural existence, and so illustrates the character of its Author.

No one will object, we believe, to this view of the matter except those who take pride in being Agnostics. But this is the Agnostic's own position; we have only put his two and two together. Mr. Spencer may be said to be the great apostle of Agnosticism, but admitting into his system two great facts, he must not evade the legitimate inferences from these facts. Fact one, the universe is the product of a Great First Cause. Fact two, the production is through the operation of Law; making the conclusion inevitable that the Great First Cause, operating only through Law, is a Great Lawgiver. He could not be the Great First Cause unless he is author of all causes and all effects, of which Law is one of the most important. In other words, using Mr. Spencer's own arguments, every effect involves the existence of a cause; the universe must, therefore, have begun with a cause; this cause must be the equal of all causes, and is,

## Vital Science

therefore, a Great First Cause. All causes produce their effects under the control of laws; therefore the Great First Cause operates through Law, and unless it be affirmed that Law is the Great First Cause, which no one believes, then the Great First Cause must have given the Law, and is, therefore, the Great Lawgiver, which is the only rational position.

13. The nature of Law involves another consideration of even greater importance,—viz., a correct formulary of it. A law is a rule by which work is done, so that if we would be successful in doing the work we must learn the rule. Gravitation is a good name for a law, but it does not define the law; so of Chemical Affinity, the Law of the Lever, and others; the name gives us no power to use them, it is the formula of the law that is the essential thing. "As the long arm of the lever is to the short arm, so is the power to the weight it will raise," is the formula that makes the lever an immense power in the hands of the scientist. Just so the knowledge that gravitation operates "directly as the mass and inversely as the square of the distance" is knowledge of immense value. Chemical Affinity is the name of a law, but it is not the law. Just so Persistence of Force may be a proper name for the Law of Evolution, but how the law operates is what we want to know, and we commend to Mr. Spencer, for instance, Newton's formula as a sample after which he could properly pattern.

14. PRINCIPLES DEFINED.—The term Principle is in such general use, and occupies so important a place in the discussions of this work, as it should in all scientific discussions, that we deem it of great importance

## Definitions and Relations

to get a clear, yet comprehensive, definition of the term. Webster defines it as "beginning," "commencement," "source or origin," "that from which anything proceeds;" also, "a fundamental substance or energy." It is evident, therefore, that the term is as applicable to Nature as to Science, constituting the last analysis of created existence, the fundamental substance or energy from which all Nature proceeds. And this is as it should be. Science being a description of Nature, —a mental picture of an existing reality,—should illustrate her in her beginnings as well as in her processes and conclusions. Nature's beginnings are, therefore, the beginnings of Science; her processes are the processes of Science, and her products the conclusions of Science.

But we have already noted that the beginnings of created existence are made up of the Force that does the work and of the Law by which the force operates. Thus, a principle of science is made to include a knowledge of the law by which the work is done. This truth is fully illustrated in the physical sciences, especially astronomy, which deals with physical force not only, but with the laws of its operation. Also in chemical science, which deals with chemical force and the laws by which it works. In perfect analogy with these, we assert that a Science of Human Health, in order to be worth anything, must deal not only with Vital Force, but with the law or laws of its operation. The Law is an essential factor; the title of our work would not answer to our conceptions of propriety unless we are able to disclose the laws of all vital manifestations.



## Vital Science

But we have still another important definition of Principle,—viz., “a comprehensive law or doctrine from which others are derived, and on which others are founded.” (Webster.) This is a most comprehensive definition. We shall discover that there are but three such principles in the universe, from which all other principles are derived: the one, the basis of mechanical existence; another, the source of all chemical laws and forces; and the third, to be here disclosed, the source of all vital activities, the basis of an exact physiology.

This principle, as are all other principles, is invisible and intangible, but none the less real; and it will be a part of our work to show that Nature as a whole, and in every part, is *an evolution of invisible principles, and not the involution of external matter; and that Science is a corresponding deduction from such principles, and not inductions from observed facts.*

The relation which a fundamental principle holds to the forces and laws of Nature may be properly expressed in a logical formula, as follows:

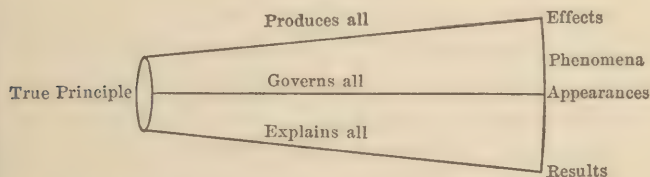
$$\left. \begin{array}{l} \text{Force} \\ \text{Law} \end{array} \right\} = \text{Principle.}$$

Thus, as a principle is “source or origin,” “that from which anything proceeds,” and as Science is knowledge, so a principle of Science is a knowledge of the force which produces the phenomena under consideration, and of the law by which the force operates to their production. And as the principle, which is the equivalent of Nature’s force and law, is the source from

## Definitions and Relations

which all phenomena proceed, whether they be the symptoms of health or disease, so we may illustrate Science, in any department of Nature, by the following diagram :

FIG. I.



From the true principle proceed all the facts, phenomena, effects, results, and appearances of the natural world ; and while these are unlimited in number and variety, the principle from which a given class springs is one and indivisible ; and, while it is impossible for us to become acquainted with all the facts of life, it is easy enough to deduce conclusions, and produce from the principles, once discovered, results, infinite in number and variety, and absolute as to certainty. As long as we continue to observe effects or appearances, remaining ignorant of the principles which produce them, we may properly be called experimenters, inductionists, practitioners, but we are not scientists. In order to be scientists, so as to be able to control or at least explain results, we must attain to the Principle, which consists of the Force that produces the results, and of the Law, according to which they are produced.

15. THE DIAGRAM may be called the Telescope of Science, which brings whatever is found within its scope near enough to permit of accurate knowledge. But it is something more than a telescope. As from

## Vital Science

a single force, operating according to Law, is produced all the phenomena of its class, so the philosopher, looking in at the small end of the glass, gets at once a comprehensive view of the whole science, including all its facts and laws, and is enabled to explain everything. This is the logical and scientific method of deducing conclusions from primal principles. By reversing the picture, we get the empirical or inductive method of arriving at knowledge. The philosopher who trusts to observation is looking in at the wrong end of the glass, causing the principle at the opposite end to appear infinitely distant and trifling. The great truths which have shaken society to its centre have always appeared insignificant to the superficial observer, while to the discoverer, the Newtonian philosopher, the comprehensive thinker, the true principle is a pearl of priceless value. To him who has attained the true vantage-ground of observation, by discovering the principle, everything seems clear, full, and obvious ; speculations give way to knowledge, and empiricism to the certainty of science. Facts, though otherwise obscure and difficult to be appreciated, are brought near enough to permit of thorough investigation, and the consequent attainment of order and certainty.

Facts may be conceived to be the fulcrums on which to rest our levers, but principles are the levers which move the world. They constitute the keys which unlock the storehouses of knowledge, and bring within our control the inexhaustible resources of Nature. It was not a lack of facts which prevented the discovery of the circulation of the blood previous to Harvey, nor that left astronomical discoveries to Copernicus,

## Definitions and Relations

Kepler, Newton ; it was not a scarcity of chemical operations in Nature that so long prevented Alchemy from becoming Chemistry ; so it is not a lack of physiological facts or experience that prevents the establishment of a Science of Human Health, or a true philosophy of existence. The treasures of knowledge in this respect are vast indeed, while the experience and experiments of physicians are beyond computation. Every phase of health and disease has been subject to intellectual treatment for ages, to result in endless confusion and disastrous uncertainty ; not because of a lack of observed facts or of intellectual ability, but from a failure to discover the principles from which Nature operates.

The true object of Science is to furnish us with principles of conduct, not to declare to us the Absolute, and leave us helpless beneath its iron grip. Its value consists in telling us what, and what not, to do, in order to take advantage of Nature's processes. It is the real world, the hidden causes of things, the invisible forces and laws of existence, that we seek to discover, in order that we may avoid danger, provide against disaster, and appropriate the good of life.

16. OF ADHESION TO PRINCIPLE.—But of what use are principles unless in practice we adhere to them? To be unprincipled in social, moral, or political life is one of the most unfortunate states of mind for any human being to illustrate, for it means inevitable misfortune, disgrace, and poverty. How much better or worse is it to be unprincipled in Science? If want of principle makes a *man* to be unreliable and dangerous, what shall we say of *systems* that are destitute of prin-

## Vital Science

ciples? We are called upon to deal with both kinds every day,—principled and unprincipled men, and sciences based upon principle and systems that have no principles. Who would hesitate to choose between them? Chemistry is a science because it is based upon principles. Alchemy was a superstition and a fraud because it had no principles. Mechanics and Astronomy are sciences because of their underlying principles, which are clear, definite, and indisputable. But what shall we say for the two great impressive systems of our day, Medicine and Agnostic Philosophy, neither of which have any principles sufficiently clear to permit of accurate statement, but, on the contrary, are claimed to be inductive sciences whose principles it is proposed some day to discover?

We propose for our readers a science based upon discovered principles,—an evolution of first truths in perfect correspondence with the evolution of Nature, of which Science is a description.



## CHAPTER II.

### THE TWO SYSTEMS—OF THOUGHT AND WORK.

"Nothing is more certain than logical truth. . . . The mathematician is strong and true as long as he is logical, and if number rules the world, it is logic which rules number."—"Principles of Science," by PROFESSOR W. STANLEY JEVONS. "The application of Scientific Method cannot be restricted to the sphere of lifeless objects."—*Ibid.*

17. THE highway of Thought, like every other highway, leads in opposite directions to opposite conclusions. It is a well-travelled road. No matter which way we turn, we shall find ourselves passing and re-passing the bewildered ones, who are now trying this way and then that, in the hope of reaching the goal of their ambition.

Shall our processes be outward and forward, or backward and inward? is the very first question that presents itself. Of late years the backward and inward, called also the *inductive* process, has been unduly advocated. There are those, of whom Francis Bacon is the great representative, who tell us that it is the only way of attaining to reliable knowledge. It has even come to pass that no science but what is called inductive is considered worth anything. And that such claim may be sustained its advocates forget their own principles, and assert that Astronomy and Chemistry are inductive sciences.

The same thought has been very properly extended

## Vital Science

to the creations of Nature. The Mind is a part of Nature, and its processes illustrate those of the other parts. If Science is an integration of facts, Nature is a corresponding integration of matter; if Science is the product of observation, Nature is the product of Environment. If Environment is the source of Life, and Mind, and all other things, it is entirely consistent that Science should be the product of observation and experiment. It is our great modern philosopher who teaches that Creation is "the integration of Matter and concomitant dissipation of Motion;" that Life is the product of Environment, being nothing more than "a mode of motion;" and that Science is a mass of facts, organized, it is true, but apparently without an organizing principle.

18. We choose the forward and outward plan as the method of our creations, whether mental or physical. As the Universe was created, so man is created, so the human mind thinks, and so Science is produced. From an invisible but *real* interior to an obvious manifestation, is the order of Existence, without an exception in the universe. Science to be worth anything must be logical, deductive, evolutionary, corresponding to the evolutionary processes of Nature. We urge Heredity as the Source of all things (§§ 34, 45), as opposed to the Environment doctrines of our modern authors; and upon this thought proceed to build a Science of Human Health.

These two systems of Thought—the backward and inward, and the forward and outward, called also the inductive and deductive, the empirical and logical—are the only ones. Both systems are claimed to be founded

## The Two Systems—of Thought and Work

upon Fact, but not upon the same class of fact. The one bases all practice upon the facts of observation, and claims that its processes are inductive. The other claims the discovery of a fundamental truth as its basis. In both cases, reasoning is supposed to precede practice. But the postulates from which the reasoning is conducted differ as do *cause* and *effect*. All observable facts are *effects* of something preceding; the something which preceded is the *cause*, which, being discovered, constitutes an eternal verity which changes not, and so becomes the unchanging basis from which reasoning may be conducted. Such a process is natural; consistent with all the processes of Nature. The Mind thinks as Nature works. The Duke of Argyle well says, "Reason requires some postulate, some primary truth" from which to reason. Only causes are primary. And causes, we have seen, are principles, which are defined as "Source" or "Origin," "that from which anything proceeds." The postulate from which one may reason is, therefore, the *cause* or *source* of all that one's reason may logically reach.

19. Reasoning from facts observed, if such be possible, is an unnatural process.

"Saw with his own eyes the Moon was round,  
Was equally sure the Earth was square,  
Because he had travelled twenty miles, and found  
No sign that it was circular anywhere."

But no man really reasons from a fact of observation. "Science is in the mind," as Professor Jevons well says, so that the postulate from which reasoning

## Vital Science

proceeds must also be in the mind, and this makes the supposed fact to be, *not one of observation but of conception*. Empirical scientists reason, not from what they observe, but from *what they think they observe*. And as appearances are so often deceptive, it is not wonderful that empirical science,—science based upon supposed fact,—even if dignified by the new title *inductive*, has always proved itself unreliable. The history of Alchemy, Astrology, and Medicine is a history of delusions, in every case based upon supposed facts of observation. It is the great Bacon who says, “It is constantly received and avouched that the anointing of the weapon that made the wound will heal the wound itself.” Men conceived—they thought they observed—this fact, and reasoned from it to the most absurd practice. It was an *assumption* from which they reasoned, as men often do, and the conclusion cannot be more reliable than the assumption.

20. Human thought and human work must correspond with Divine thought and work if it would be successful. It is no more conceivable that a logical conclusion can be before its postulate than an effect can be before its cause, a tree before its seed, or a child before its parents. And every conclusion is an evolution of its postulate just as truly as the plant is an evolution of its seed. Science is no more an “integration” than it is an aggregation of observed facts. It is an unfolding of conceived principles corresponding to every living organism which is also the evolution of a *conception*. Creation, whether of a universe, a world, a living thing, a science, or a thought,

## The Two Systems—of Thought and Work

is a manifestation, evolution, or unfolding of an invisible potency, which, really existent, had within it "the promise and potency" of all which followed. It is an evolution of invisible principles, and not the involution of "things seen;" is the evolution of a Divine Plan, and not the "integration of matter."

Scientific reasoning, therefore, proceeds from cause to effect, from seed to fruit, from principle to product, corresponding to all other natural processes. Such reasoning reduces the complexities of Nature to the simplicities of Science. The products of Nature are multifarious, even beyond human comprehension. As long as we confine ourselves to the world of observation we must continue in a state of bewilderment. Causes, on the contrary, are few in number, simple in character, and having discovered those of any class, we have attained to a certainty of knowledge which contrasts gloriously with the previous speculations. All causes are forces; all forces are directed by laws; there are but three ultimate forces with their corresponding laws. (§§ 83, 99.) To reduce the complexities of Nature to the simplicities of Science involves primarily the discovery of the Law, which, sustained by its proper force, produces, controls, and, being understood, explains all the phenomena of its class. Such a science is based upon Reason, and is, therefore, logical, deductive, exact.

21. Professor John Hughes Bennett, of the University of Edinburgh, an able and experienced teacher of Medicine, distinguishes with great clearness in his "Practice of Medicine" between real and fictitious science. He says (p. 4),—



## Vital Science

“If we regard the whole field of human knowledge, and reflect on the differences which exist among the various sciences, we must insensibly be led to classify them into two great divisions,—viz., the exact and the inexact. All the sciences belonging to the first class are characterized by the possession of a primitive fact or law, which, being applicable to the whole range of phenomena of which the science consists, renders its different parts harmonious and the deductions of its cultivators conclusive. Thus, the physical sciences possess a primitive fact in what is called the law of gravity. It was Sir Isaac Newton who demonstrated, by a happy effort of genius, that all the planets in our system gravitate towards the sun by the same law, and in consequence of the same principle, as that by which bodies on the earth gravitate towards its centre. . . . This law applies to all the facts of which physical science is made up. In the same manner, Chemistry possesses a primitive fact in what is called the law of affinity, discovered later by Lavoisier. If we mix two salts, which mutually decompose each other, a third salt is formed by the union in definite proportions of their constituent elements. This, in the language of the chemists, is brought about by chemical affinity. . . . The possession of this primitive fact, then, communicates the greatest accuracy and precision to the sciences that possess it, and on this account they are called the exact sciences.

“But there are other sciences which are altogether destitute of a primitive fact, which consist of groups of phenomena, each of which may or may not be governed by a particular law (?). Such a one is agriculture. . . . The same means, apparently, which operate at one time fail to do so at another. Such sciences, then, are denominated *inexact* sciences, and it is to this class that Medicine belongs.

“Now, the cultivators of Medicine have always been, and are still endeavoring to render the science exact; and hence, at varied times, individuals have brought forward what they conceived to be a law or primitive fact, and have tried to show that it was applicable to all vital phenomena.”

But, after showing that none of the previous attempts have succeeded in reducing all vital actions to one law, Professor Bennett proceeds:

22. “Medicine, then, in its present state, possesses no primitive fact. But is it not very possible that it may do so at some future time?”

## The Two Systems—of Thought and Work

During the many ages that existed before Newton physical science was as inexact as that of physiology is now. Before the time of Lavoisier, chemistry, like physiology, consisted of nothing but groups of phenomena. These sciences went on gradually advancing, however, and accumulating facts, until at length philosophers appeared who united these together under one law. So Medicine, we trust, is destined to advance, and one day another Newton, another Lavoisier, will arise, whose genius will furnish our science with its primitive fact, and stamp upon it the character of precision and exactitude."

The essential truth advanced by this able teacher but confirms what we have been saying. Science must be based upon its primitive fact; that is, the fact from which it is deduced. And as Science is a perfect description of Nature, the primitive fact of the one must be the primitive fact of the other. We repeat, as Nature grows, so Science is to be deduced; as Nature proceeds from seed to fruit, so Science proceeds from principle to product, the principle corresponding to the seed and the product corresponding to the fruit. The overwhelmingly important consideration is The Finding of the Seed—The Discovery of the Principle. Such discovery is the starting-point of the Science. The impregnation of an ovum by the sperm of the male is not more necessary to the development of a living organism than is the discovery of the organizing principle to the development of Science.

23. The first step towards this discovery is a knowledge of the composition of the principle,—a knowledge of what the seed is like. We have already attained to very clear ideas of the nature, character, and value of principles. Having found a seed of Science, we know what it looks like. We have been delighted to find how perfectly it resembles that great discovery of the

## Vital Science

immortal Newton which enables the astronomers to weigh the worlds, predict conjunctions and eclipses, explain the tides, and solve many otherwise insolvable problems. A principle is a Force under control of a Law; it has been the discovery of the Law in all ages that has given exactness to Science. More than twenty years ago we discovered the one great law which controls all vital phenomena; it has only been since we commenced to write our system that we have learned how erroneous are the doctrines of Modern Science concerning the nature and source of Vital Force. Vital Force, under direction and control of Life's Great Law, is the "primitive fact" of Vital Science, which "primitive fact" having been established, makes the Science logical and exact. We would exalt the power and value of logic in spite of the fact, which we recall, that it was an eminent medical professor who so ridiculed it in his poem, "The One-Hoss Shay,"—ridiculed, of course, the logic with which he had become familiar in his profession.

24. The advantages of the logical over the experimental method are proved by every-day facts, and may be described as, First, economy; by it we avoid waste of material, time, and energy; Second, as certainty; we know beforehand just what we can and cannot do; and, Third, exactness; it being possible to verify conclusions, correct errors, or change plans while they still continue to be theoretical, instead of changing them when they are found by application to be faulty or wrong. It is too late to correct the treatment of a patient after he is dead.

We might occupy pages in describing the wonderful

## The Two Systems—of Thought and Work

results of logical science, but *cui bono*? It is impossible to conceive of the accomplishment of any important undertaking except in answer to logical deductions. Correct plans have always preceded successful practice.

25. Yet still Empirical Science flourishes, due, no doubt, to the continually recurring necessities for action while as yet the true principle remains undiscovered. This is especially true in Medicine. Sickness and death never wait on the convenience of doctor or patient. The doctor must prescribe whether he understands the case or not. The profession have been treating patients for generations notwithstanding their confessed ignorance of the nature of disease and the absence of any consistent theory of operation.

There can be but one true theory of anything, but who can tell how many erroneous ones are possible? One may shut his eyes and shoot in the dark at a flock of pigeons with the certainty of hitting some, but when there is only one in the whole flock that we want, and we don't know which that is, we are much more likely to miss than to hit it. Inductive Science of every name is shooting in the dark with but one pigeon to hit,—only one correct theory of Nature's processes possible. And that it has not hit the right one is proved by the fact that it is still inductive. Recall how long men clung to Ptolemaic Astronomy without hitting the right theory of the universe, while during three thousand years of Medicine all kinds of theories have been advocated and practised without bringing to it success or certainty.

26. These truths have an extremely practical bear-

## Vital Science

ing. They affect not only a man's science and his business, but his social, political, and religious interests. Life in every aspect of it is a development of thought, and like thought has its two opposing forms of development,—the expedient and the principle. Shall we stick to principles or yield to expedients? The practical man says, Adopt the expedient; the Scientist, the Christian, the statesman, says, Stick to your principles. The successes and failures of life show that both roads are well travelled. "Patient continuance in well-doing" leads to glory and honor. On the contrary, "those who obey not the truth," but live in the apparent, forever adopting plausible expedients, as did the great father of Modern Induction, suffer accordingly.

"Nae rules nor roads observin',  
To right or left eternal swervin',  
They zigzag on,  
Till cursed wi' age, obscure and starvin',  
They aften groan."

27. The conflict between these opposing systems of thought and work is as old as the human race. It is beautifully illustrated in that great allegory of the Garden of Eden where Man had placed before him the same choice which we all have every day,—the choice of knowledge through Faith, or through Works, through conviction of Truth or through Experiment. He chose Experiment then, as he still chooses it. And he has reaped as he had sown. The Tree of Knowledge of Good and Evil is still before every man. The serpent principle says to-day, as it has always said,



## The Two Systems—of Thought and Work

"In the day ye eat thereof, your eyes shall be opened, and ye shall be as gods, knowing good and evil." Many a young man seeks through experience to get his "eye teeth cut." The wise parent said, and continues to say, "In the day thou eatest thereof, dying, thou shalt surely die." Both speak the truth. Our parents ate; their eyes were opened; they had tasted of both Good and Evil, whereby they might distinguish the one from the other. Becoming acquainted with Evil they were tainted with it as innocence always is. Fear now entered their souls; the birth of conscience had occurred; and one sin naturally leading to others, man began the downward road to death. The name of the first empirical scientist was Adam, whose experiments are being daily repeated by modern inductionists. He lost his life but he gained knowledge, and it is said of his lineal descendant, Francis Bacon, that he also lost his life in making an experiment.

28. The Christian plan is the opposite,—the logical plan. It begins in conception, proceeds to conviction,—a real birth of truth; and being born again by the power of Him who is the Truth,—who came to "bear witness unto the truth,"—man's course is upward to Life rather than downward to Death. And all by virtue of power inherent in him. The Christian system bases everything upon Heredity. Even the worlds were created by "the first-born of every creature." Its leading doctrine is, "Ye must be born again." The other system teaches the elevation of man through power from without,—through power from Environment.

## Vital Science

The Christian system would elevate man through power from within. "Lo! the Kingdom of God is within you." The one system says, "Try, and find it out for yourself;" the other says, "Ask and ye shall receive" through "Christ in you, the hope of glory." The one says, "Learn wisdom by experience;" the other says, "If any man lack wisdom, let him ask of God," "whose temple ye are." The one says, "Believe only what you see;" the other teaches faith in the things "not seen." The one urges that all knowledge comes from observation of things visible; the other declares Faith to be the conviction of things invisible. The one says, "Observe, experiment, try;" the other says, "If ye continue in my words ye shall know the truth." The one would have us observe the ordinances, obey the commandments; while the other says, "Stand fast, therefore, in the liberty wherewith Christ hath made us free." The one urges dependence upon Environment, another name for slavery; while the other teaches the freedom of Christ. Both plans lead to knowledge, but the ease and certainty of the one contrasts gloriously with the labor and sorrow of the other. We commend the same principles in Science that have so often proved effective in Religion.

29. It were unnecessary to pursue any investigations as to the relative values of these opposing systems of thought and work. The facts speak for themselves. The power and value of Christian life and doctrine are undisputed and indisputable. No honest thinker doubts the wonderful superiority of Christian over Hindoo, Chinese, or Mohammedan civilization. True,

## The Two Systems—of Thought and Work

this superiority is often accredited to Science, but whence the Science? Why not China and India have been the leaders in the world's progress instead of Europe and America? We need only say that the faith underlying the Science which has built our cities, developed our country, built our railroads and steamships, established lines of rapid communication between varied countries, is distinctly logical and Christian as opposed to the speculative, agnostic, and skeptical systems of our day.

Modern Inductive Science, so called, illustrates other principles, and is derived from other sources. Bacon and Comte were its founders, Darwin and Spencer are its leaders; but they have all distinctly deserted the paths trod by Newton, Huyghens, and Faraday; by Watts and Stephenson, Fitch and Fulton; by Morse and Bell, and a host of others who have trod the pathway to fame by appropriating and applying the facts, not of the far-off islands of the Sea, but of every-day life. These believed in and adhered to principles; it was the distinguishing characteristic of the lives of the great founders of modern induction to be so destitute of moral and political principles that they didn't know that Science needed any, and so proceeded to teach men how to construct systems according to their fancies, unguided by any controlling principles. But, as Professor Jevons well says,—

“Within the last century a reaction has been setting in against the purely empirical procedure of Francis Bacon. . . . I take the extreme view,” he says, “of holding that Francis Bacon, though he correctly insisted upon constant reference to experience, had no correct notions as to the logical method by which from particular facts we educe laws of Nature.”

## Vital Science

30. And now as to the fruits of modern induction. No better illustration can be found than modern Medicine. "Medicine is a Science of observation and induction," as old Professor Chapman well said, and as such illustrates with great force the value of inductive methods. Physicians are not less competent than other observers. And no one can dispute that they possess larger opportunities for observation than most men. And yet the absurdities and contradictions of practice are a never-ending source of confusion and dismay to the practitioners. We could fill volumes with confessions of their ignorance, error, and failure, but will content ourselves with a summing up of the results of medical practice by that eminent French physiologist, Bichat, whose words here quoted have often appeared in medical works and been repeated in medical conventions. We quote them from Bennett's "Practice of Medicine," p. 332, as reliable testimony to the uncertainties of modern inductive science.

"There have been no general systems in the *Materia Medica*; but this science has been alternately influenced by the prevailing theories of physic. From hence proceeds the indefiniteness and uncertainty which mark it even in the present day. It is an incoherent mass of incoherent opinions and probably of all physiological sciences that in which the inconsistencies of the human mind are most glaring. What do I say? It is not a science for a methodical and philosophical mind; it is an incongruous combination of erroneous ideas, *observations often puerile*, means at the least fallacious, and formulæ as fantastically conceived as they are preposterously combined. It is said that the practice of combined physic has something repelling in it. I will say more; in those principles which connect it with the *Materia Medica* it is absolutely revolting to a rational mind." Bennett further says, "Magendie observes that one chemist is in accord with another as to his fundamental facts, and that the phenomena observed in his labora-

## The Two Systems—of Thought and Work

tory are the same in Paris as in New York, in London as in Calcutta." But, he adds, "it would be a painful task to pass in review the different modes of medical treatment employed in different localities for the same diseases. Even in Paris should an individual be attacked by typhoid fever, the treatment would vary according as he was sent to this or that hospital. Most of our scientific anatomists, like Bichat and Magendie, have continued to distrust the influence of medicines in disease, and have taken too little interest in therapeutics. The consequence has been that the generality of medical practitioners are educated in a blind faith as to the properties and uses of drugs, a faith which has, in most cases, descended to us from a barbarous age, has become traditional, and possesses no relation to the present state of medical science."

Bennett continues to "feel astonished at the unfounded assumptions, want of evidence, and even unreasonableness which characterize writings on the action of medicines," and we ask, Why? Because "Medicine is a science of observation and induction;" which means that it has not yet discovered its fundamental truths and is, therefore, compelled to speculate concerning appearances, or at best to reason from *assumptions*, for it has nothing else to reason from. Reason, we repeat, "must start from some postulate," and to be trustworthy this "postulate must be a primary truth which cannot be denied." Anything and everything may be denied in Medicine and can be met only by counter-denial; for of its fundamental principles it may be truly said "nothing is known."



## CHAPTER III.

### EVOLUTION *vs.* INVOLUTION.

*Being a short review of some leading philosophic thoughts.*

“Every great advance in science consists of a great generalization, pointing out deep and subtle resemblances.”—PROFESSOR W. STANLEY JEVONS in “Principles of Science.”

31. HARMONIOUS relation of the varied parts, otherwise termed consistency or congruity, is the acknowledged fact of universal existence; and, as Mr. Herbert Spencer observes, “It is the business of philosophy to establish their universal congruity . . . down even to the components of every inference and every observation.” The whole, being made up of the parts, makes every part necessarily consistent with the whole. The most perfect analogies will be found between the parts. It is for this reason, we have said, that Nature, Science, and Logic are indissolubly connected, (§ 1) illustrating the same principles and tending to the same conclusions. Not only does “every particle of matter in the universe,” as Newton proved, but every process and every conclusion, agree with every other particle, process, and conclusion. To have discovered the point at which all the parts meet, and the plan by which they are all united into a consistent whole, is to have made the true discovery, and while Darwin, Spencer, Tyndall, Huxley, Haeckel,

## Evolution *vs.* Involution

Helmholtz, Mayer, and many others, have contributed to the grand result, we believe it will not be claimed that all the truth has been elucidated.

32. We proceed to the inquiry, Is the process of Creation, whether past or present, one of Evolution or of Involution? in order that we may the more clearly discern the processes of disease and cure, of life and health. The question is not one of philosophy simply, but of Science, and especially the Science of living existence. We are stimulated to the consideration of this subject because of the suggestions of Professor Henry Drummond, who, evidently accepting the evolution-doctrine of Herbert Spencer, discusses it with great fluency in his "Natural Law in the Spiritual World," but more especially in his "Ascent of Man," and concludes this later volume with a chapter on Involution, in which he repeats the arguments of his Natural Law, and urges that the "supreme factor in all development is Environment," and "everything that lives, lives in correspondence with this Environment." "Tree and root find their explanation not in something in themselves, but mainly in something outside of themselves." "The secret of Evolution lies, in short, with Environment," and then, as if to explain himself fully, he says, "Evolution is not to unfold from within; it is to infold from without." (*Ascent of Man*, p. 324.)

33. All this is very surprising when we reflect that Mr. Drummond was a Christian minister and an undoubted believer in the Christian Scriptures. He did not, we are sure, intend to suggest that in order to spiritual development the new birth is unnecessary,

## Vital Science

but he does suggest it. If "the natural environment gives men their natural faculties," and "the spiritual environment affords them their spiritual faculties," as he says, where is the necessity of being born again? Mr. Drummond very truly says, "What Biography would speak of as parental influence, Biology would speak of as Heredity; and all that is involved in the second factor—the action of external circumstances and surroundings—the naturalist would include under the single term Environment. These two, Heredity and Environment, are the master influences of the organic world. They have made all of us what we are." And he continues on the next page, "Of these two universal factors, Heredity and Environment, it is unnecessary to balance the relative importance here. The main influence must be unquestionably assigned to the former." How, then, can he say that "the supreme factor in all development is Environment"? It cannot be both Environment and Heredity at the same time. This palpable contradiction is due to the attempt to mix the oil of Christianity with the muddy waters of Agnosticism. To make Herbert Spencer and the Apostle Paul yoke-fellows in the same philosophy is an almost incredible incongruity which can satisfy neither Paul nor Spencer.

34. The very essence of Christianity is involved in this question. The Environment doctrine is the same which Paul so vehemently attacked in his letter to the Galatians eighteen hundred years ago. According to Spiritual Christianity, God is the Universal Father, and the "new birth" is the source of spiritual faculties. It is son-ship that makes us heirs of God—heirs of His

## Evolution vs. Involution

nature, character, possessions—and joint heirs with “the first-born of every creature.” Being heirs makes Heredity to be the source of Life, whether natural or spiritual, with Environment as the *occasion* or *condition* for the expression of the inherent powers and capacities.

This distinction between *occasions* and *causes*, as well as between the *conditions* for the operation of a force and the *force* that operates, we shall learn in succeeding chapters (§§ 72, 73, 74), is a fundamentally important one, and the failure to observe it, the leading source of the confusion that has betrayed not only Mr. Drummond, but many other Christian men to the support of the Agnostic system. “Wherefore thou art no more a servant but a son, and if a son then an heir of God through Christ.” Environment never did and never can produce what did not previously exist potentially; but once a thing really exists, Environment may supply the *conditions* or constitute the *occasion* for calling forth the inherent powers. And the process is Evolution in its only true sense,—the outworking of internal powers, while the contrary which Mr. Spencer persistently urges is Involution, the inworking of external forces.

The Christian idea is, “the Father *in* me and I in the Father.” In the language of Paul, it is “Christ *in* you the hope of glory.” It was Jesus who taught us to say “Our Father in Heaven” and declared, “Lo! the Kingdom of God is within you.” “If Christ be *in* you,” says Paul, “the body is dead . . . but the Spirit is life.” “If the Spirit of Him that raised Jesus from the dead dwell *in* you . . . he shall also quicken your mortal bodies by his Spirit that dwelleth *in* you.”

## Vital Science

And again, "Know ye not that ye are the temple of the living God" who "worketh *in* you to will and to do."

35. These are not Spencer's doctrines. On the contrary, his whole philosophy was intended to destroy every thought of internal powers and capacities. He substantially ignores Heredity, and maintains in all his discussions that not only all vital development, but Life itself, in every form and manifestation of it, is due to Environment, and he had a much clearer idea of what is meant by Environment than had Mr. Drummond. Spencer began at the beginning, and consistently taught that every process, function, and organism—that all existence, indeed—is due to Force. He just as clearly perceived that there are two kinds of force in the universe. The one he calls "*intrinsic*" and the other "*extrinsic*." He calls them also *passive* and *active*, "the force by which it (a thing) exists is *passive but independent*; while the force by which it moves is *active but dependent*." No one will dispute these well-nigh self-evident truths. Religionist and Scientist here meet on common ground. But here, too, they part, and thereafter pursue exactly opposite courses. While Paul refers all development to the power *within*—"the Spirit of Life"—that "worketh in us to will and to do," Spencer definitely, categorically, and persistently urges that all development is due to power from without. In § 23, "Principles of Biology," Mr. Spencer says,—

"It is a corollary from that primordial truth which, as we have seen, underlies all other truths, that whatever amount of power an organism expends in any shape is the correlate and equivalent of a power that was taken into it from without."



## Evolution *vs.* Involution

This is the same doctrine that is persistently urged in his "First Principles," where he says (§ 70) that "the transformation of an egg into a chick," that "any change of a fixed quantity of matter into a new shape," and that "any surplus forces expended in movement," are all "derived from this same pre-existing external force." And he proceeds (§ 71) to show that the "forces which we distinguish as mental come within the same generalization."

"Those modes of the Unknowable," he says, "which we call Motion, Heat, Light, Chemical Affinity, are alike transformable into each other, and into those modes of the Unknowable, which we distinguish as sensation, emotion, thought; *these in their turns being directly or indirectly retransformable into their original shapes.* That no idea or feeling arises, save as a result of some physical force expended in producing it, is fast becoming a commonplace of Science; and whoever duly weighs the evidence will see that nothing but an overwhelming bias can explain its non-acceptance." (The Italics are ours.)

36. Does the reader perceive any incongruity in the thought that all operations, taking place in a living organism, are due to external and alien forces, while its internal and intrinsic forces are dormant until some alien work is to be performed? The living organism, like all other existences, possesses intrinsic and inherent forces, as Mr. Spencer must admit; why not conceive that it is the intrinsic force of the organism that does the work of the organism, and not an extrinsic force? Shall we conceive that it is steam that operates the steam-engine and electricity the electric motor, or the reverse? Shall we conceive that our thoughts and feelings are the product of our inherent life-powers or of extraneous forces? Professor John Tyndall would

## Vital Science

seem to have written his "Constitution of Nature" for the purpose of exposing the errors of this transformation doctrine. The assertion that Heat, Light, and Chemical Affinity are alike transformable into sensation, emotion, thought, and that these are retransformable into Heat, Light, Chemical Affinity, etc., is so repugnant to human common sense, and so opposed to all experience, that it constitutes one of the most marvellous exhibitions of "overwhelming bias" ever given. Once a thing is transformed into another thing it ceases to exist in its former state, so that if heat is transformed into thought, feeling, and action, as Mr. Spencer teaches, it must disappear as heat correspondingly.

37. Mr. Spencer also teaches the *equivalence* as well as the *transformation* of forces. If the development of the chick "is altogether a question of heat," as he says (§ 41), there must have been a great loss of heat in order to bridge the chasm between the egg and the chick. And if the chick's life returns to heat the chicken must become a red-hot coal when it dies. For Mr. Spencer proceeds to emphasize these doctrines by declaring a quantitative as well as qualitative relation between these forces, using the phenomena of *tickling* and the consequent "incontrollable movements" as illustration. We quote (§ 71):

"Any hesitation to admit that between the physical forces and the sensations there exists a correlation like that between the physical forces themselves must disappear on remembering how the one correlation, like the other, is not qualitative only but quantitative."

And, after giving varied illustrations to prove this statement, he proceeds,—

## Evolution vs. Involution

“Besides the correlation and equivalence between external physical forces and the mental forces generated by them in us under the form of sensations, there is a correlation and equivalence between sensations and those physical forces which, in the shape of bodily actions, result from them.” . . . And as one of the important illustrations we read, “unusual excitement of the nerves of touch, as by tickling, is followed by incontrollable movements of the limbs.”

All this is for the purpose of teaching the “transformation and equivalence of forces.” There is no point to his illustration if the “incontrollable movements” of tickling are not the product of the force employed in the tickling. But he is compelled on the succeeding page to admit that this is not so, but that the results of tickling and similar phenomena are due to “the forces called vital;” but he consistently maintains that these vital forces are the “correlates of the forces called physical.” It is the great fundamental doctrine of his system that physical force is the *ultimate* cause of all phenomena, but he has just now been teaching that it is the *immediate* cause as well. Finally, however, he concludes that he must retract this sweeping assertion.

But we have no special desire to expose Spencer’s verbal inaccuracies, if it be possible to conceive that these are only verbal; it is his fundamental doctrines that are on trial. The real question is, Are vital phenomena of all kinds the product of external forces or of internal forces? Is Life the product of bread and beer or of inheritance? of extraneous force or of inherent force? The arguments, proofs, and demonstrations belong chiefly to succeeding chapters; we are here only exposing the incongruities of a system

## Vital Science

that bars the way to a Science of Human Health. Without further remark we would refer the reader to Spencer's chapter on "The Transformation and Equivalence of Forces" (which are not properly Forces at all, but only Motions) as one of the most remarkable essays ever written, while we proceed to one or two references to this subject from the same source that are worthy of consideration, preparatory to a fuller examination of his leading doctrines.

38. "How this metamorphosis takes place,—how a force existing as Motion, Heat, Light, can become a mode of consciousness,—how it is possible to generate the sensation called sound, or for the forces liberated by chemical changes in the brain to give rise to emotion,—these are mysteries which it is impossible to fathom. But they are not profounder mysteries than the transformation of the physical forces into each other." (First Principles, § 71.)

Of course not. In both cases these are mysteries because the claims are false. Mystery has been the refuge of error in every age. Mr. Spencer's confession of mystery is the condemnation of his system. Once upon a time a certain professor propounded to a class of thirty-nine students the question, "Why does fresh water begin to freeze at the top and salt water at the bottom?" and gave them twenty-four hours for reflection before answering. Next day thirty-eight students gave as many ingenious explanations, but the thirty-ninth replied, "It doesn't do it, sir." "How do you know?" "I tried it last night." We have tried a good many of Mr. Spencer's facts, and found them exactly not so. The fact is, he is so committed to the transformation and equivalence doctrines *as a necessary foundation for his system* that no

## Evolution *vs.* Involution

illustration is too far-fetched to be acceptable to him if it gives the slightest appearance of answering to his theory. Indeed, we repeatedly find him perverting the simplest facts of Science and giving to them a wholly illegitimate meaning, in the hope of bolstering up this transformation and equivalence sophistry. The phenomena of clouds and rain is an excellent illustration.

39. "If we ask," he says, "how came the rain to be in that position whence it fell? the reply is, The vapor from which it was condensed was drifted there by the winds. If we ask, How came this vapor to be at that elevation? the reply is, It was raised by evaporation. If we ask, What force thus raised it? the reply is, The Sun's heat. Just that amount of gravitative force which the Sun's heat overcame in raising the atoms of water is given out again in the fall of those atoms to the same level." (First Principles, § 69.)

If it were not that Mr. Spencer had a theory to sustain we feel sure that he would have made another explanation. The *force* that raised the water to the clouds is the same force that brings the water down from the clouds,—viz., Gravitation. The Sun's heat is the *occasion* for the operation of gravity, but Gravitation is the *cause* or *power* that raises the water, on the same principle that it raises the hot air, or any other, balloon. (§§ 72, 73, 119.) The atmosphere in immediate contact with the water having become moistened by capillary attraction retains the Sun's heat to an extent that dry air will not, and becomes, therefore, of less specific gravity than the dry atmosphere, and rises upward just as cream rises on milk. Gravitation, by pulling down, causes the lighter vapor to ascend. By and by the vapor loses its heat, especially



## Vital Science

when it strikes a current of cold air, and becoming heavier than dry air (because it loses its heat more readily than dry air, just as it previously gained heat because of being moist), Gravitation brings it down again in the form of rain. In other words, moist air is a rapid conductor of heat, easily gaining it or losing it, while dry air is the best possible non-conductor of heat, and so loses and gains very slowly. Moist air quickly becomes heavier than dry air, and just as easily becomes lighter than dry air, under change of temperature. Gravitation is, therefore, the cause or force that lifts the vapor up and brings the rain down, heat and capillary attraction being the *occasions* or *conditions* necessary for this peculiar operation of gravity. (§ 120.)

40. Mr. Spencer's theory of how the egg becomes developed into a chick is equally at variance with the facts. In § 70 he says,—

“The transformation of the unorganized contents of an egg into the organized chick is altogether a question of heat; withhold the heat and the process does not commence; supply the heat and it goes on while the temperature is maintained but ceases when the egg is allowed to cool.”

No one questions that there is force stored within every egg, and that this force is invisible, known only by its effects; why not conceive that when a chick comes forth it is because of the force stored within,—the chick from chicken vital force; the duck from intrinsic duck-force; but when the egg is resolved into gases it is because it had no life-force, but only chemical and physical forces? Why search the boundless expanse of the heavens to find the force which

## Evolution *vs.* Involution

produces wheat or rye, dog or hen, monkey or man, when the real power is immediately before us, stored in the wheat or rye, monkey or man, as no man can soberly and intelligently deny? Matter without force, which is internal to it, is an admitted impossibility; but the force which is *internal* to one thing is *external* to other things; by what process of reasoning may we infer that it is external force that does the internal work, and internal force that does the external work? We are quite of the opinion that the great Architect of the universe was much wiser and more economical of His forces than Mr. Spencer has imagined Him to be, in that He puts internal, intrinsic force to the doing of internal work; and each after its kind, chemical force for the doing of chemical work, mechanical force for mechanical work, vital force for vital work.

But let us return to the egg. We invested in an incubator and gave the subject a faithful trial, and soon found that moisture is as important as heat. At least, no amount of heat would give us viable chickens unless the moisture was attended to. We found, also, that the rapidity of development bore no relation to the amount of heat, as it should do if heat were the cause. (§116.) Indeed, though we boiled the egg for a week, we could discover no evidence of a coming chick. We found also another important truth, that under the same circumstances of heat, moisture, etc., some eggs would bring forth chicks, black, white, brown; some ducks; while some would develop into noisome gases. It is evident that there must have been some other reason for the varying results. Was

## Vital Science

it the thermometer? A thermometer cured Sir Humphry Davy's patient. (§163.) We found that unless the thermometer were always present there would be no chick. Every man who has not closed his mind and steeled his conscience so that he shall not know, knows well that the important determining factor in these results is included in the single word, Heredity. Every fact in the universe, as far as it has any bearing on this subject, goes to show that *Life* is the *cause*, *external agencies* the *occasions*; *motion* the *immediate effect*; and *evolution*, in its philological and only true sense, *the process*. (§§ 72, 73, 74.)

41. But we shall not content ourselves with an examination of the details of Mr. Spencer's work; the author's mature conclusions from the facts and arguments are the important things. The nature of Life is necessarily a subject of surpassing interest in this connection, and Mr. Spencer has devoted many chapters to the elucidation of the facts on which to base a consistent definition of Life. But even then he has not begun at the beginning; he assumes the existence of organic matter without even suggesting how or where he gets it. But after appropriating without acknowledgment this product of Life, he proceeds to show its remarkable instability, which makes it subject to changes under the slightest influences, and from thence proceeds to suggest, not to prove, that Life, which never appears except in organic matter, is the product of incident and external forces, which, by accident, it may be, have been brought in contact with the matter. Nerve-force, which he admits he does not understand, he nevertheless asserts is "habit-

## Evolution *vs.* Involution

ually generated in all animals, save the lowest, by incident forces of every kind." We note a consistency here. If external forces produce all our thoughts, feelings, ambitions, activities (§ 35), why should they not produce Life itself? If they can produce the very highest manifestations of Life, why not the lower manifestations? And this is what Mr. Spencer teaches; Life and all that follow are the products of incident and external forces.

In the process of working up this theory there is, it is true, much doubt and hesitancy exhibited; but the result is finally reached, and the finished product appears in these words:

"The broadest and most complete definition of Life will be—the continuous adjustment of internal relations to external relations."

In accordance with this system Life has no essential existence, but is simply and only a name given to certain peculiar processes of change going on in matter, as the product of external forces. In more popular phraseology, "Life is a mode of motion," just as is heat, light, electricity, etc. In § 85, "First Principles," Mr. Spencer says, "Life, as it exists in all the members of such species, is an *extremely complex kind of movement*, more or less distinct from the kind of movement which *constitutes* Life in other species." (The italics are ours.) Thus, Life is neither force, matter, nor mind; but rather the *motion* resulting from the force. It is soberly asserted, and sought to be proved, that all our thoughts, feelings, ambitions, perceptions of right and wrong (if we have any), are but "other forms of manifestation of external" physical

## Vital Science

forces. Mr. Spencer does not deny the existence of internal and intrinsic forces in Nature; but it would seem that human life is unworthy of being constituted of them. Force, he agrees, is the ultimate principle of existence, but Life is not such a force. In accordance with his theory, there would seem to be no such thing as the *Ego*. We are only "modes of motion," due to food and drink, circumstance and surroundings, so that when the motion ceases all is ended. There is no other life, because there is no *essential* present life. Death ends all, as birth began all, and the peculiar concatenation of circumstance which this so-called Evolution produces is the only father or creator men need.

42. Mr. Spencer has not, however, always consistently adhered to his own principles. In his "First Principles," we read "that no idea or feeling arises but as the result of some physical (external) force expended in producing it," but in his "Principles of Biology" he has become much more conservative. He there says (§ 21),—

"But there is a kind of force manifested in some classes of living bodies which we cannot identify with any of the forces manifested by bodies that are not alive,—a force which is thus unknown, in the sense that it cannot be assimilated with any otherwise recognized class. I allude to what is called nerve force."

Why not conceive that it is this intrinsic nerve-force, rather than extrinsic heat, light, or electricity, that produces all our ideas and feelings? Is it not much more reasonable to infer that the "incontrollable movements" connected with tickling are due to this



## Evolution *vs.* Involution

nerve-force rather than to the very slight application of force from without?

But we read in the same section, "Whether we shall ever know anything more of this nerve-force than that it is some species of molecular disturbance that is propagated from end to end of nerve, it is impossible to say."

In the previous volume Mr. Spencer taught that vital force, nerve-force, sensation, are all the product of external forces which have been transformed from something pre-existing, but now we learn that nerve-force is probably nothing more than some kind of "*molecular disturbance*," and this, no doubt, preparatory to a corresponding definition of Life, already foreseen, which makes Life itself to be simply Motion, disturbed or otherwise. We think the reader will readily agree with us that Motion is the *product* of Force, and that nerve-force is something more than "*molecular disturbance*." But we shall learn, when we come to study the constitution of Nature, that this confusion of Force with Motion is the pivotal doctrine and necessary prerequisite to Spencerian Evolution.

43. And now, in the light of these remarkable philosophic doctrines, is it wonderful that Mr. Spencer should need to overturn the accepted doctrines of all previous science in order that he may build up his great system? From these discussions concerning nerve-force he proceeds at once in search of a proximate definition of Life, and so begins his Chapter IV., which, in a foot-note, he says has been carefully revised, by the following (§ 24):

## Vital Science

"To those who accept the general doctrine of Evolution it needs scarcely to be pointed out that classifications are subjective conceptions, having no absolute demarcations in Nature corresponding to them. They are appliances by which we limit and arrange the matters under investigation; and so facilitate our thinking."

This facilitation, we believe, depends entirely upon how we make our classifications. Those which are not true to nature cannot facilitate our thinking to any good purpose. A false classification will surely lead to false conclusions; and, if we may be pardoned the suggestion, this is why Mr. Spencer denies the possibility of any true natural classifications. The very essence of science consists in finding the correct line of demarcation between things. "All logical inference," says Professor W. Stanley Jevons, of University College, London, "involves classification, which is, indeed, the necessary accompaniment of the action of the judgment." And again he says, "The value of classification is coextensive with the value of science and general reasoning;" and he quotes Professor Bowen, of Harvard College, as saying, "Perhaps it will be found in the sequel that classification is not only the beginning, but the culmination and the end of human knowledge." On the contrary, Mr. Spencer finds, "When we attempt to define anything complex . . . we can scarcely ever avoid including more than was intended, or leaving out something that should be taken in." Can there be any better proof that he has failed to discover the correct classification? He is floundering in the realms of speculation, unable, in the dim light which he possesses, to distinguish Nature's lines. This was clearly shown in the very

## Evolution vs. Involution

beginning of his work, when, after correctly dividing natural existence into inorganic and organic departments, he proceeds to explain that he has not discussed Inorganic Evolution, because "to do so would have occupied two volumes, one dealing with astrogeny and the other with geogeny;" but he proceeds "to the more important applications of the doctrine."

This classification of the Inorganic world into Astrogeny and Geogeny, we must remark, may be popular, but it is not scientific, and not at all adapted to any consistent philosophy of existence. It is a classification based upon appearances instead of facts. To consider the constitution and relations of the stars as a subject distinct from the constitution and relations of our Earth is not in accordance with Newton's demonstrations. *Nature's laws are the only reliable lines of demarcation in the universe.* And are we not entitled to view with grave suspicion any system of philosophy which fails to make practical use of the discoveries of Newton, Lavoisier, and Dalton, as Spencer's surely does? To suggest that laws so fundamental as Gravitation and Chemical Affinity play no important part in the evolution of existence is a monstrous thought; we prefer to observe the legal divisions of inorganic existence, and shall delay a moment to indicate the rational divisions of inorganic evolution:

1st, *The Chemical*, which deals with the composition of matter throughout the universe, not only, but with the changes that are ever going on in its composition or constitution; in a word, with its evolution; and,

## Vital Science

2d, *The Mechanical*, dealing with the relations of masses of matter to each other, and with the means of maintaining or changing these relations, describing mechanical evolution.

Unlike Mr. Spencer, we have not in this classification "included more than was intended, nor left out anything that should be taken in." On the contrary, it is a classification as exact as mathematics, and as trustworthy as every true science.\*

44. But a much worse incongruity appears in connection with the very central doctrine of this so-called evolution. Mr. Spencer begins his "First Principles" with the announcement "that unified knowledge constituting completed philosophy is a knowledge composed of parts that are universally congruous; and besides seeing that it is the business of philosophy to establish their universal congruity, we also see that every act of the process by which this universal congruity is to be established, down even to the components of every inference and every observation, consists in the establishment of congruity."

We learn, therefore, very truly, that "every act of the process" of establishing a philosophy is a process of "establishment of congruity," a fact which causes

---

\* The extent to which Mr. Spencer has carried his system of Involution, even to the breaking down of natural distinctions in every direction, is a psychological study worthy of his own great intellect. What can the ordinary mind think of the following from § 40 of his "First Principles" (second and revised edition)?—

"There is no mode of establishing the validity of any belief except that of showing its entire congruity with all other beliefs."

We had never before been told that the true and the false are entirely congruous with each other.

## Evolution *vs.* Involution

us to be surprised beyond measure when we read, "Principles of Biology," § 74,—

"But as before said, such difficulties must necessarily present themselves if organic forms have arisen by insensible gradations. We must be content with a course which commits us to the smallest number of incongruities; and this course is, to consider as an individual any centre or axis that is capable of independently carrying on that continuous adjustment of inner to outer relations which constitutes Life."

Whence the necessity of pursuing a course which commits us to incongruities if the system we are advocating is composed of parts that are "universally congruous"? Do not these "smallest number of incongruities" conclusively show that our author has not found the thread that is capable of leading him through Nature's labyrinths?

45. One more incongruity and we proceed to indicate a theory of existence which, we believe, eliminates all incongruities, and declares a philosophy consistent with itself and with all known facts and laws. Mr. Spencer claims that his philosophy is synthetic, made up of inductions and generalizations from observed facts, and yet we find him substantially ignoring the plainest, most frequent, and all-inclusive fact of existence, Heredity, while he rummages the realms of the unexplored and unknown for facts on which to base a philosophy of existence intended to overthrow all previous conceptions of truth and remand us again to speculative chaos. Heredity, as every one knows, brings forth Life; no man since the world began ever observed the production of Life through any other means. We aver that Mr. Spencer's system is a baseless speculation concerning this, its central doctrine.



## Vital Science

In spite of all observation that Life comes only from Life,—in spite of the admitted fact that a Great First Cause must be acknowledged,—Mr. Spencer teaches that Life is generated by mechanical influences playing incidentally, and perhaps accidentally, on Matter. ("Principles of Biology," Vol. I.) But he has been unable to wholly ignore Heredity. He admits the fact of parentage, but hear what he says of it:

"A positive explanation of Heredity is not to be expected in the present state of Biology. We can look for nothing beyond a simplification of the problem, and a reduction of it to the same category with certain other problems which also admit of hypothetical solution only."

45 ½. We have failed to discover in Mr. Spencer's work the "universal congruity" which he promised, not only, but the slightest evidence of "any simplification of the problem" of Heredity, notwithstanding that it is the problem of all problems with which organic philosophy should deal.

We return to the thought which underlies this chapter. There are before the world to-day two opposing theories of existence, well described by the terms Evolution and Involution, referring respectively to Heredity and Environment as the sources of their power. Must we trace Life to Heredity or to Environment? Mr. Spencer says Environment, and so plausible have been his arguments that a goodly number of writers have accepted his doctrines, which is very surprising in view of the fact that it is an accepted principle of all modern thought that things are produced now as they always have been produced; so that if Environment ever produced Life it still produces it; if it produces it now it has always produced it. Is

## Evolution *vs.* Involution

this what observation shows? Mr. Spencer says that Environment produces the chick. Can he correspondingly dispute that he is himself the son of his father?

Again, if Environment produces Life it must carry on the functions of Life; if it carries on the functions of Life it must have produced Life. Mr. Spencer is himself the great authority for the Persistence of Force. In the nature of things no power can produce a continuous creation except as it preserves what it creates. No process could produce what it cannot reproduce. No one dare dispute that it is through Heredity that we all exist,—that we have all been created, produced, reproduced. It was even through Heredity, “the first-born of every creature,” we are told, that the worlds were created; it is, as it always has been, through the same Heredity that man has been created. How shall we conceive of any other principle of production for chick or duck, vegetable or animal? And how else shall they or we be preserved, repaired, healed? How else shall we produce Science except through the development of its germinal principles? Throughout Nature it is *something* from *something*, and each after its kind, which *something* possesses hidden within it the potency of all that follows. It is chick from an invisible principle of life within the egg; it is plant from a corresponding invisible principle within the seed; it is science from discovered principle; and all things from an efficient and sufficient Great First Cause, by whom all Nature is produced. In other words, we assert “congruity down even to the components of every inference and every observation.”

## Vital Science

If every consistent philosophy must begin with the assumption of a self-existent something, who is the Source and Author of all, so, if congruity would be universal, every other organized system, whether intellectual, animal, or vegetable, must also begin with the existence of a *something* that shall answer to all its parts. It is the discovery of this *something* that has enabled us to prepare the following pages. It is the discovery of this *something* that has compelled us to expose the errors and controvert the conclusions of those who by every right of position and learning were our teachers. Mr. Spencer claims that his system is evolution, but in order to sustain his claim he is compelled to make his own dictionary. "Evolution," he says, "is an integration of matter and concomitant dissipation of Motion, during which the matter passes from an indefinite, incoherent homogeneity to a definite, coherent heterogeneity, and during which the retained Motion undergoes a parallel transformation." In contrast with this system we teach Evolution, the outworking of interior principles, and not Involution, the inworking of external forces, corresponding precisely with the methods of study elucidated in a previous chapter,—viz., deduction or reason, being a development of truth previously hidden within the postulate from which it is derived, as opposed to induction and consequent speculation based upon facts of observation.

## CHAPTER IV.

### THE GREAT FIRST CAUSE.

"In our search for a cause, we discover no resting-place until we arrive at the hypothesis of a First Cause; and we have no alternative but to regard this First Cause as Infinite and Absolute. These are inferences forced upon us by arguments from which there appears no escape."—SPENCER'S "First Principles."

46. WE necessarily approach this subject with considerable diffidence, and, of course, do not presume to speak authoritatively; but there is so much involved in a correct conception of the nature and character of the cause and origin of the universe that we are emboldened to apply the principles already suggested to the consideration of

*First*, The existence of a Great First Cause;

*Second*, His relations to His Universe; and

*Third*, Certain necessary inferences from the facts.

If Science would be deductive, logical, and exact, it must begin where the processes it proposes to describe begin, and continue along the lines of Nature's work to follow closely the threads of her operations, and map them out for the consideration of the inquirer after truth; in a word, paint a picture of Nature as she is. In doing so the scientist will frequently cross the tracks of the bewildered ones who have been wandering aimlessly through a dreary waste of words, or energetically following up some false

## Vital Science

trail; only here and there encouraged by the emblazoned truth of the world's discoverers which marks the pathway to exact knowledge. Inasmuch, therefore, as the science here sought to be established is a fundamental one, tracing directly to the origin of existence, we are called upon to start with this origin and follow our science in lines parallel to its sister sciences, chemistry and mechanics (astronomy). For chemistry and mechanics are fundamental sciences, preparatory to living existence, and like it, tracing directly to the Great Lawgiver who said, "Let there be light; and there was light." Our work heretofore has been preparatory, mapping out our plan, clearing away the rubbish, and gathering together the materials, and we now proceed to constructive realization. We would start with a foundation deep down in the nature of things, established upon a recognition of the existence and sufficiency of a Great First Cause. Is there such a cause,—a cause whose power, presence, and sufficiency shall account for all that is? The proof may come in varied ways:

47. *First*, By the consistency of all the results reached. If a consistent, reasonable, and sufficient system based upon this theory can be established,—a system in which all facts shall be in agreement with all other facts, universal harmony having been obtained,—we are warranted in accepting as very suggestive, at least, the hypothesis of a Great First Cause.

*Second*, The confession of agnosticism by all who have sought to conceive a system without admitting such cause into its parts and processes, even though it was conceded in the beginning, and especially the



## The Great First Cause

evident incongruities of the system, is hardly less satisfactory proof of His existence.

*Third*, The unitary nature of existence implied in the term universe, which is universally acknowledged to be correctly descriptive of the Cosmos we inhabit, is itself important testimony to the existence of a great Source and Author of all. But this universe appears to us in three distinct departments, the Chemical, Mechanical, and Vital, as we have already suggested, and will further show (§ 83) which departments again illustrate an infinite variety of motions, activities, productions, individuals, showing that the order of existence is from one to many,—that is, from cause to effects in great variety (§ 85), from seed to fruit as every fruit-tree proves, from principle to products innumerable, as, for instance, Chemical Affinity makes gunpowder and explodes it, and so is the real cause of all the results of the explosion. Reversing the order of our investigation, we learn that causes become less numerous as we trace them backward and still farther backward, all of which justifies us in concluding that all causes are traceable finally to one all-pervading cause, whose existence shall account for all that is. With this fact as a starting-point, and recalling what we have already shown, that reasoning must proceed from cause to effect and never in any other direction (§ 18), we proceed to note that:

48. EVERY CAUSE MUST BE ANTERIOR TO ITS EFFECT.—No effect can produce its own cause. Mr. Spencer well shows that the universe could not create itself, which is equivalent to the admission that no part of the universe could create itself. He also rejects

## Vital Science

the self-existent theory, which would seem to be only slightly different from the self-created one, and is equally sure that the universe could not be created by external agency, in all of which respect we agree with him, especially in regard to the latter conception. But we are not prepared to admit that we have thus exhausted the range of possible methods. What objection is there to the theory of

49. CREATION BY THE OUTWORKING OF INTERNAL POWER ?—The term evolution would seem to necessitate this thought. True, it may be asserted that this involves the idea of self-existence, but inasmuch as every other possible conception involves this idea in some form, we shall here admit it, and urge the truth of the evolution as opposed to the involution doctrine. All productions are necessarily the result of power, and this power must, it is evident, be either internal or external to the thing produced, which makes the process to be correspondingly evolution or involution, and we can discover no good reason for conceiving that the processes of universal production—the production of a universe—differ in any essential particulars from the processes everywhere in vogue. We believe in “congruity, down even to the components of every inference and every observation.” As the whole is made up of the parts, so we are warranted in asserting that the whole was produced as the parts are produced. It is inconceivable that there is one order of work for the whole with a contrary order for the parts. If it is “unthinkable” that the universe could be created by external agency, how is it any more “thinkable” that some part of it could be cre-

## The Great First Cause

ated by external agency? We assert the evolution doctrine that all are parts of one stupendous whole. We shall expect to establish, as the only reasonable conception, that, as all things are the product of force, and all things contain force, so it is the force *in* the thing that produced it, and not the force from without. Two and two make four only because they are included in the four; oxygen, hydrogen, and chemical affinity make water only because they are included in the water. So we assert it as a universal fact of observation, that all causes are interior as well as anterior to their effects. And this suggests the corresponding truth which Science and Religion agree in affirming,—viz., that the Creator is universally present in His Creation, a self-existent Great First Cause, forever working out His great designs. (§§ 76, 78.) If not in His universe, where else could He be? If not everywhere present in it, how could a sparrow *not* fall to the ground without His knowledge, or how could He be the cause of all? We assert, therefore, as a fact in perfect agreement with all that has preceded, and to be further established by the consistency of all the results reached, that the cause of anything (a cause being defined to be “that by the power of which a thing is”) is *interior* as well as *anterior* to its effect. Even a cannon-ball would seem to carry within it the momentum which produces its destructive effects. So the force of every explosion resides in the thing which explodes and not in the accident which occasioned the explosion. So, too, we shall see, it is the force in the horse that makes him run, and the power in the man that makes him think; indeed, we shall

## Vital Science

demonstrate, if we have not already done so, that the cause and source of all living existence and all vital activity, is interior, and not exterior, to the living thing. Mr. Thomas H. Huxley's description of the work of the "hidden artist" (§ 156) is exactly in point. Indeed, all the facts of life teach but one story of existence,—viz., that it is the outworking of an internal and invisible principle. What is universally true in the living world we are warranted in declaring to be true with regard to the development of the universe as a whole; it is the outworking of an internal power, who is the efficient and sufficient cause of all development.

Mr. Spencer must not complain at the application of his own principles. He has admitted that every effect must have its cause, and that the Universe being an unlimited organization of causes and effects, must result from a Great First Cause, which, by the terms of his constitution, must be equal to, and include, all causes and all effects, and if this cause could not be external, which he says is "unthinkable," how can the subordinate causes be external to their effects? The processes of Creation must be consistent from the beginning "down even to the components of every inference and every observation."

50. As Nature, therefore, produces rock or mountain, lake or sea; as she develops an egg, a rosebush, or an orange, so the universe has been produced; and so must be developed science, philosophy, all knowledge. From an interior (invisible) principle outward to results is the process of existence without an exception in the universe. Exceptions belong to the realm

## The Great First Cause

of speculation. It is impossible to conceive that The Unchangeable, in the working out of His decrees, has ever dropped a thread or failed to include universal existence in the one great plan. Mathematicians do not record exceptions; mechanical laws know no exceptions; in a word, the laws of Nature are invariable, universal, omnipresent, illustrative of the character of their author. Men talk about "exceptions to all rules" only in connection with human inventions. Who ever discovered an exception to Gravitation, Chemical Affinity, the Law of the Lever, or any other principle of Nature. It is an equally remarkable fact that the Christian Scriptures, whether by the mouth of Matthew, Mark, Luke, or John, Paul, Peter, or James, never makes an exception to the universality of any truth, all of which goes to prove a consensus of opinion as to the unity of things that is very remarkable. If it is a rule, therefore, that the causes of things are internal to the things, it is a rule without an exception. And thus, while the proof of evolution may not as yet be conclusively established, the preponderance of evidence is so overwhelmingly in favor of the outworking principle that we may defer further consideration of it to §§ 78, 121, while we proceed here to note an agreement between Science and Religion, or more properly between the natural and the spiritual, that has, we believe, been generally overlooked. This agreement may be expressed as follows:

51. While the fact that all things are from one great, Eternal I Am is everywhere admitted, the process of their production illustrates a hazy indefiniteness in both the theologic and scientific mind that is



## Vital Science

very remarkable. The Christian Scriptures teach that all things were created by and for one "who is the image of the invisible God," "the first-born of every creature," "who is before all things and by whom all things consist," and who is described also as "God manifest in the flesh;" "the Word" "the way, the truth, and the life."

In other words, they teach that "there is but one God and Father of all," who created all things for His own glory, but that the work was accomplished through a God who was *manifested* to create the worlds (Col. i. 16); to preserve the worlds (Isa. xlv. 22, 23); to redeem the worlds (John iii. 17); to take away sin (1 John iii. 5); to destroy evil (Rev. xxi. 4, 5); to give light and life and truth (John i.). It is the relations between this God manifest and the Invisible God that have not, we are sure, been generally apprehended, and because of the resulting confusion, skepticism is only too general, and even avowed infidelity not uncommon. Those who adhere closely to the idea of the one God are prone to reject the idea of a God manifest, and those who exalt the personality of the Christ are constantly liable to the conception of two or three Gods rather than one.

52. Science agrees with Religion in illustrating the exactly parallel confusion of thought. Take, for instance, Herbert Spencer's "First Principles," which might perhaps be called the agnostics' Bible, and we learn that force is the "ultimate of ultimates" (§ 50); that it is "indestructible" (§ 54); "persistent" (§ 60); an "Unconditioned Reality," "without beginning or end" (§ 62); that it is "intrinsic," "passive," "unknowable,"

## The Great First Cause

"that absolute force of which we are indefinitely conscious as the correlate of the force we know" (§ 62); and also, "the force by which matter demonstrates itself to us as existing and the force by which it demonstrates itself to us as acting." It is evident, therefore, that Science recognizes the existence of two kinds of force as the source of all things, in perfect consonance with the Christian's recognition of the two personalities who are equally the source of all things.

The true relation between these two classes of force Mr. Spencer does not claim to understand. Nor do any other scientists so far as we are aware. Just as Revelation declares Father and Son, the invisible God and the God manifest, so science says (§ 60), "The forms of our experience oblige us to distinguish between two modes of force; the one not a worker of change, and the other a worker of change, actual or potential," both of which are described as being "without beginning or end." ("First Principles," § 62.)

Here, then, Christian and scientist meet on common ground. The "passive," "independent," "intrinsic force" is beyond human ken except as the active force reveals its nature; so we know God only through the active manifestation of Him, through whom all things were created, preserved, redeemed. (1 Tim. iv. 10.)

53. The Christian doctrine of Father and Son and the scientific doctrine of Force and Motion illustrate the same principles and are susceptible of the same explanation. As the Son is a manifestation of the Father, so active force is a manifestation of the passive force. As it is "the Father in me and I in the Father," so intrinsic force is existent in all energies and all

## Vital Science

motions. And as the Son is not transformed but only derived from the Father, so active force is not transformed but only derived force. As "it is the Father that doeth the works," so it is intrinsic force that performs all functions, no matter if observation does ascribe these functions to active force called also Energy or Motion. This is one great truth, at least, which this work proclaims; vital function is the product of inherent, intrinsic, vital force,—the product of Heredity,—which under certain conditions has become actively engaged in doing work,—that is, in making changes in answer to changed conditions, and is not at all the product of Environment or external force, motion, or energy, any more than the Son is a higher development of the natural man.

We conclude, therefore, that as the God-man declared God in the man, so active, extrinsic, working force declares or manifests force that was previously passive, intrinsic, non-working. The power within is the only true power, whether actively at work or passively existent. Actively at work, it is producing changes; passively existent, it is preserving things as they are, but always ready to respond to changed conditions. God in Creation is the only true theology, whether preserving or producing. Manifested in man or in matter, the fact remains that all that is, is the product of interior, invisible, intrinsic forces, and never in any sense the product of those which are exterior.

54. And now, having described, in some respects at least, the relations of the Great First Cause to His universe, we proceed to the consideration of

## The Great First Cause

### CERTAIN NECESSARY INFERENCES FROM THE FACTS.

—One of the first of these is, that *all causes are invisible*. (§ 133.) This is true whether we refer to the Great First Cause or to any subordinate efficient agent in the universe. The causes of things are the principles of existence, and principles, we have seen, are forces directed by laws. (§ 15.) Every principle of operation is an invisible force, having an unchanging order of work, which force, being recognized by the mind, becomes a principle of science, which produces, governs, and, being understood, explains every phenomenon that follows. The Creator is invisible, as is the creative principle in a seed, a bud, a germ, an egg. Existence is the unfolding of *invisible* creative principles which seize upon and mould to their uses the visible things of Nature. (§§ 70, 71, 93.) From the invisible to the visible is the order of creation declared by Revelation (Rom. i. 20), and confirmed by Science, without a single well-established or even possible fact in the universe to controvert it. The chick is not the development of the visible materials of the egg, but of an invisible power of life that seizes upon the material and builds from this material an organism to correspond with the parent life,—from the duck, a duck; from the chicken, a chick; but from the egg without life, explosive gases. (§§ 67, 69.) Recognizing this truth, we need not say that no explanation of form, color, or character of the production is possible. Like begets Like. An interior, invisible cause of existence is, therefore, a necessary conclusion of the human intellect, and is confirmed by the analogies of Nature in every department. (§ 41.)

## Vital Science

55. But the arguments that are admitted to sustain this conclusion yield an exactly similar and equally important one, which though just as logically certain, may not be as readily admitted, though we cannot see how any thinker can doubt it,—viz., that *the cause, whether first or last or anywhere along the chain of causes, must be the comprehensive equal of the effect.* The stream cannot rise higher than its source. A cannon-ball cannot expend or give off more energy than it has received. If the rivulet can flow but one inch higher than the sufficiency of its cause, there is no reason why it shall not climb the mountain-top and “increase by force of its own intensity,” as the quack doctor says of disease. If one-thousand-millionth portion of an atom can be added to the universe beyond the sufficiency of the cause, there is no reason why the whole universe shall not exist independently of a cause; and if the universe is causeless, all its parts must be equally so, and every principle of science must consequently fail. If the less include the greater, perpetual motion must not only be admitted but infinite existence be the product of non-existence. If the slightest increase of the effect beyond the sufficiency of the cause can be secured, every relation of cause and effect must fail, and not only Science but the human mind be proved incompetent to any conclusion.

56. But as we have here the pivotal doctrine of our system, especially in contrast with Spencerian Involution, it is important that we shall, if possible, give proof of its truth as complete and as perfect as the case will permit. How better do it than to apply the



## The Great First Cause

arguments of Mr. Spencer himself. On page 37, "First Principles," he says,—

"We cannot think at all about the impressions which the external world produces on us without thinking of them as caused; and we cannot carry out an inquiry concerning their causation without inevitably committing ourselves to the hypothesis of a First Cause;" and, after a page of argument, he concludes, "We have no alternative but to regard this First Cause as Infinite and Absolute." Why call Him Infinite and Absolute if it is not the recognition of the fact that He includes all causes,—past, present, and future. Is it to be supposed that the Infinite and Absolute First Cause did, in the beginning, simply start the ball rolling, so that it has been going upward ever since by virtue of its original momentum? May we presume that the Great First Cause first put the universe in motion and then deserted it to its own devices? Or must we conclude that the Creator is *in* His creation the efficient and sufficient cause of all that is? If the cause is not the equal of the effect, then some part of the effect is causeless, and if a part is without cause, why not the whole? If the Great First Cause is not the equal and source of all causes and all effects, why call Him an Infinite and Absolute First Cause?

Consistency of thought demands that we proceed in our processes in a straightforward manner through infinite time to infinite results. If the dead can produce life, if unintelligent matter can produce intelligence, there is no reason why man shall not progress to infinite capacity by virtue of power residing in the circumstances of his Environment, and if infinite re-

## Vital Science

sults can be obtained by progress in one direction, we are for the same reason justified in concluding that this infinitely upward process began with nothing. If the universe has come up by slow degrees from next to nothing, as Mr. Spencer seems to think, why not call the First Cause, the Little First Cause. He is certainly either LITTLE or GREAT; the logical outcome of much modern philosophy is that He is very little. To talk about developed intelligence while as yet there is no intelligence from which it can be drawn, is an error of reasoning hardly excusable in a philosopher. It is not conceivable, Mr. Spencer declares, "that the Universe created itself;" how is it any more conceivable that some part of it created itself, that Mind and Life are the result simply of certain relations which exist between varied forms of matter? If it be contended that matter possesses infinite intelligence, then it would follow that matter is alive and has mind; but this is not claimed. Life is defined simply as a "mode of motion" due to a fortuitous concatenation of circumstances, but has no positive existence. It is neither cause, power, nor intelligence. It is nothing but a peculiar relationship between varied classes of matter, so that it follows, inevitably, that as soon as the correspondence between the internal and external is interrupted or destroyed, the life is ended, man is no more; there is no other life.

We have definitely and categorically resisted this conclusion, and proceed to the establishment of a science on another basis. Life only from Life is the true theory of organic development. The facts of observation confirm the deductions of reason and the

## The Great First Cause

inferences of analogy, without a fact in the universe to throw doubt upon the conclusion. It is with eminent satisfaction that we trace *our* genealogy through the ages to Him who is the Source of all life, and who has enough still and to spare. Let others seek to establish their paternity as they will, *our* life is not simply "a mode of motion," but a substantial reality, the gift of Him who is Infinite in this respect as in all others. Life, Eternal Life, is the cause and source of all that is; is, indeed, the efficient and sufficient Great First Cause, who embodies and includes all other causes. In a word, Life is the moving, energizing, determining principle of Existence, Who is in and through all things, and "by Whom all things consist." It was Life Eternal that commanded the worlds into existence, as the necessary prerequisite for the development of Life, infinite in variety, in numbers, and capacities with which the world is inhabited.

57. Life in *Nature* appears first in protoplasm, indefinite, organless, living matter, which, though alive, is not Life, for we may see dead as well as living protoplasm, showing that Life is something distinct from either. Though organless, it produces all organs, as all observers agree, and still it is each after its kind. Vegetable protoplasm will not produce animals, nor animal protoplasm man. Life, therefore, as an indisputable, observed fact, is *not the result*, but the *cause* of organisms. (§ 54.)

But we are reminded that organisms produce protoplasm. Certainly. Reproduction is one of the great facts of life; but reproduction only because of an inherent power to reproduce. The creature perpetuates

## Vital Science

and reproduces himself only because he is himself a partaker of Life from the source of Life, and has been endowed with the capacity to give to others of what he has received. And even that which he gives must be from the Great First Cause, through parent to child, to all the millions who have lived and died, and who yet will live and die. (§ 126.)

The Great First Cause must therefore be acknowledged to be an Infinite Cause,—infinite in duration, in power, in character, in quality. Progress is the great fact of the ages, but progress beyond the Source and Cause of all is impossible. It will continue through infinite existence, but will never, can never, exceed its Source, any more than existence, as we have it, could have developed from something infinitely beneath it, and, finally, from nothing.

The reason, therefore, that concedes a Great First Cause to be necessary also concludes that this First Cause shall be the equal of all that follows,—the equal of the infinite capacity to which all things tend. Upward and not downward—upward to the cerulean of the heavens, and not down to the mud at the bottom of the sea—must we look for the origin of things,—upward as high as mortal conception can reach, to the good and the true, the bright and the pure, beyond all realization, ay, beyond, but in the direction of, our fondest dreams of goodness and beauty.

58. The character of the Creator is, therefore, described by the things He has created. He is *alive*, because there is life; He has *mind*, because there is mind; *intelligence*, because of intelligence; *wisdom*, because of wisdom; *power*, because of power. The

## The Great First Cause

less cannot produce the greater. If something cannot come from nothing, then of necessity the something from which it came must be the equal, at least, of the something that did come. Life came only from Life, and Mind from Mind, and the characteristics of the effect describe with great precision the source from whence it came. The Divine Mind is of necessity illustrated in the human mind; the one, however, infinitely above the other. He is Creator, Preserver, Redeemer, Governor, Tutor, Father; and Like begets Like, in character if not in degree. The processes of the human mind must illustrate, therefore, the processes of the Divine Mind. "That which may be known of God is manifest in them, so that they are without excuse," the Apostle says. (Rom. i. 18.)

59. We are called upon, therefore, to give some attention to the processes of the human mind as illustrative of the processes of the Mind from whence it is derived. Because man thinks, God thinks; because man works, God works. Not that man illustrates equal wisdom or knowledge or power with the Mind from whence he came, but only that the correct processes of human thought illustrate corresponding processes of Divine thought. Man reasons; therefore, God reasons. Man perceives; therefore, God perceives. Man plans; therefore, God plans. Man works according to his plan; therefore, God works according to His plan. It may, indeed, be truly affirmed that the order of successful work throughout the universe is always the same. The first step is the conception of the plan. God first *conceived*, then commanded, as does every



## Vital Science

ruler; and into His work put His whole soul. And science that is Science, philosophy that is worthy the name, illustrates the order of creation, which is the order of divine thought, and, therefore, of human thought its offspring, which order is always deductive, evolutionary, logical. Science, like every other organism, and like the universe itself, begins with *conception*, proceeds to conviction and application, and enjoys the fruits of its truth and faithfulness, and is thus descriptive of Nature's processes.

60. The Great First Cause must therefore be *infinite intelligence*, and not a blind, unreasoning force. If man is superior to the animal because of the possession of reason, so the Source from whence men and animals come must be superior to all of them *because possessed of infinite reason*. If the Great First Cause includes all causes, being above and greater than all; if the stream (of intelligence) cannot rise higher than its source; if every effect must have its efficient and sufficient cause; if Life comes only from Life; then it must follow that the Great First Cause illustrates the highest conceivable order of Life and Mind. The Great First Cause is infinite intelligence, being superior to all present intelligences not only, but superior to intelligence that may and will be developed through endless ages. Infinite progress we believe to be the destiny of man, but such progress is possible only because there is infinite existence from which man came and to which he may grow. And that such progress is in the direction of greater intelligence, knowledge, capacity, moral as well as intellectual, is predicated upon the fact that the condition of existence

## The Great First Cause

described by the term Mind is the highest known, and that development, being upward, is, therefore, in this direction. Upon this principle man is superior to the horse, and the horse superior to such orders of existence as illustrate less intelligence.

Mind, Infinite Mind, is, therefore, the source of all things. This position is further established by the fact that it is absolutely necessary to the universal congruity which all philosophies seek to obtain. Mind, human or divine, is the directing principle of existence. Hands and feet, muscle and nerve, are the servants of thought. Every building, machine, garment, every human production, is the product of thought; which is always the first and controlling agency. Mind illustrates the highest order of existence, the end to which all things tend, only because of the existence of an infinite and unchangeable Mind which continues to draw all things to Himself, as we shall further see. (§ 121.) And the process is evolution, in fact as well as in name,—the outworking of an internal power.

61. The requirements of human reason, therefore, necessitate the conclusion,

That every effect presupposes a cause;

That the cause is, and must be, anterior to the effect;

That it is also interior to it, as the term evolution suggests;

That it is invisible,—a principle forever outworking to results, seizing and appropriating the materials of existence to its uses;

## Vital Science

That the cause must be the efficient and sufficient equal of the effect;

That the Great First Cause must answer to the requirements of all things just as each subordinate cause does to its effect, and that He must consequently be infinite to answer to the requirements of progress through endless duration;

That Mind being the highest order of existence with which we are acquainted, must constitute this Infinite First Cause, and be illustrated by all such processes as are necessarily inherent in Mind;

And, finally,

That the Divine Mind is best described by those qualities which commend themselves to the human mind as the very highest conception of what is good and true.

62. It being a necessary conclusion, therefore, from all consistent thought, that all things proceed from the one Great First Cause, who is the efficient, and sufficient equal of all that is, and of all that ever will be, we are called upon to note once more that the process represents the outworking of interior forces, which forces are from the one Eternal I Am. Do they constitute the I Am? We shall not agree to this thought until it can be proved that Force and Law, Mind and Matter, are identical. Nor unless it can be equally shown that the law which controls the revolutions of the planets is the same that produces and explodes dynamite, and brings forth countless living

## The Great First Cause

things. We here teach the trinity of Nature, showing that the One God appears in Nature through three distinct forces, directed by correspondingly distinct laws, and that each department is "immediately produced" by the "Unconditioned Reality," in the same way and to the same extent that Force in general is admitted to be thus produced. So-called modern thought imagines that all things are traceable to the Great First Cause through a single line of descent. We insist upon appealing to the facts of observation which trace all things to the one cause through three distinct branches, as we learn from the Mosaic record, and which are confirmed by every recurring fact of existence. We shall, we believe, clearly show that Chemical Affinity (Mr. Spencer to the contrary notwithstanding) *cannot* be produced in Nature by any means known to man, but is, on the contrary, a primary force, the basic principle of material existence. We shall equally show, what Mr. Spencer admits, that Gravitation is also a primal force, and controls the relations of masses of matter to each other, while Life, Vitality, or Life-force is equally primary and ultimate, not producible in Nature, but tracing directly to the "Unconditioned Reality." As Life comes only from Life, so do all its manifestations. As we cannot originate the former, so we cannot originate the intelligence, wisdom, knowledge, truth, virtue, which it manifests. Fish, as we shall show, can neither make brains nor brains secrete thought, notwithstanding the fish may supply the materials for the brains, and the brains may be the organs through which the thought is expressed; but behind the brains, as well as behind

## Vital Science

the thought, there is a Mind that produces both. Knowledge from knowledge, wisdom from wisdom, truth from truth, which is equivalent to Life from Life, and each after its kind, is the great fact of existence.

63. But we must not anticipate. Succeeding chapters will deal very fully with this subject. In the mean time we proceed to consider another and very important element of universal existence,—viz., *the Great First Cause is unchangeable*. From hence the persistence of force, the certainty of Nature's operations, the stability of natural law. His first appearance is reported to us in the character of Lawgiver, by which matter was, and long has been, compounded; by which the firmament was established, and is maintained, the planets carried to their places; and, finally, living existence created. But behind His laws must have been the character which produced them, Love, Wisdom, and Power, all of which are infinite and *unchangeable*. Stability is the first requisite of success. How can one hope to see a successful universe unless by patient continuance in eternal certainty? Reason, science, all thought, therefore, confirm Revelation, in the statement that He is the "same, yesterday, to-day, and forever." The Unchangeable Power and Wisdom are, therefore, the first element in the production of results, but every result, like every compound, involves at least another element, which, in order to the infinite variety of result everywhere observable, must be a changeable element. If both elements were unchangeable, no progress would be possible; if both elements were changeable or trans-



## The Great First Cause

formable, the certainty of result would be greatly reduced; but with one, eternal, unchangeable cause of all things to answer with unvarying certainty to every change of condition or circumstance, we have the greatest possible flexibility combined with certainty. (§ 147.)

64. As a theory this truth will not be disputed by any thoughtful mind. It is, at least, one point upon which Science and Religion invariably agree. In practice, however, we fear the truth is not clearly discerned by either Science or Religion. In the minds of most people, even scientists like Tyndall, the duty and value of prayer are based upon the idea that by this means we may change the Unchangeable. Such a thought is as opposed to Revelation as it is to Science and common-sense. To change the Unchangeable is a contradiction of terms so obvious that it seems inconceivable that any intelligent man could entertain it for a moment. We cannot make the All-wise any better, wiser, or more powerful than He is, nor any more willing to give good things to them that ask Him. But we can fulfil the conditions, even if we cannot change the cause; and the distinction between *conditions* and *causes* we have already suggested, and in the next chapter will fully expound. The Christian idea is, that we "shall not be heard for our much speaking;" but we must forgive others if we would be forgiven. Prayer is a thing not so much for public places "to be seen of men" as for the silent chambers of one's own heart. It must be coupled with a realization of need, as in the case of the publican, and with humility, as opposed to the self-satisfaction of the Pharisee;

## Vital Science

and coupled with faith, with childlike confidence, with pure motive, and at once comes the invitation, "Ask, and ye shall receive; seek, and ye shall find; knock, and it shall be opened unto you." God is the Eternal Good, who, by the very terms of His constitution, must give good things to them that ask Him. Unchangeable, He is the Source of all changes, and what the change shall be depends upon the conditions supplied. Were He capable of being changed, there could never be any certainty in anything; but unchangeable, He answers to every change in the theatre of human thought and conduct, and gives good things to all who seek to be good. The testimony of Reason, Science, and Revelation is that Prayer is a condition, and when coupled with the other conditions of heart and mind, it brings its answer with the unerring certainty that belongs to Science.

Nature furnishes in the laws of her fundamental departments an exact illustration of the character of the Lawgiver, as far as his Unchangeableness is concerned. What a blessed thing for man that Gravitation and Chemical Affinity are always "the same, yesterday, to-day, and forever"! And what better evidence that they are the edict of an Unchangeable Lawgiver and not the product of Evolution? (§ 12.) If our enemy could change them, what would become of us? If they changed spontaneously, how could we be certain of anything? It is because they are unchangeable that we are able to secure the utmost stability in our work. We always know what, and what not, to expect under a given set of circumstances, and are never disappointed

## The Great First Cause

in our expectations where we have obeyed the laws. Can we not perceive the importance of certainty in our relations to the Eternal One? Must our life continue to be one of doubt, difficulty, and uncertainty because we cannot trust to the unchangeableness of the Great First Cause,—the cause of our being? In what, then, consists the value of Prayer? Not to change the Unchangeable but to supply the conditions for the indwelling and outworking of the divine nature. We shall see (Chapter V.) that the one force, Gravitation, produces all the infinite variety of operations in natural mechanics, and Chemical Affinity all the infinitely varied effects of chemistry, the very opposite results flowing from the same cause, in answer to changed conditions, a truth which is further elaborated in Chapter VI., and again in Chapter IX., showing that it is the unvarying nature of the law which establishes certainty of result, corresponding to conditions supplied. So in the living world both health and disease are the products of the same force in answer to opposing conditions. Just so the value of prayer is greatly enhanced by the unchangeableness of the Divine nature.

While, therefore, Prayer is of immense consequence to every intelligent creature, in that it is to Life what the water-wheel or steam-engine is to manufacture, there is little value in merely saying prayers. Heathendom may seem to thrive under its forms and ceremonies, but it cannot continue indefinitely thus to thrive. Christianity urges what all human experience has proved to be valuable—fasting and prayer—as the means for divine indwelling and inspiration. In our

## Vital Science

day, under the influences of involution doctrines, however, fasting has become well-nigh obsolete, and men besiege the throne of the Immmutable under the insane idea that they can change the Unchangeable. It was the Lord who said to Moses, "Why cry ye unto me? Speak unto the Children of Israel that they go forward."

## CHAPTER V.

### CREATION; OR, HOW THE WORK IS DONE.

"It is no mere theory, but a fact as certain as any other fact of science, that creation has had a history. It has not been a single act done and finished once for all, but a long series of acts,—a work continually pursued through an inconceivable lapse of time. It is another fact, equally certain respecting this work, that as it has been pursued in time, so also it has been pursued by method."—ARGYLE'S "Reign of Law."

65. How Nature does her work, in order that we may take advantage of her operations, appropriating her forces to our own uses, is, as we have seen, the work of Science, and the inquiry at once presents itself, What work? The answer is, All work. The universe is a unit as its name implies, so that all processes and all products, must correspond with all other processes and products. There are certain analogical principles which are common to all, which if we may discover and apply, will not only establish science, but indicate a philosophy, and each will confirm the other with confirmation which human reason cannot resist. We proceed to discuss the processes of Creation, past as well as present, and present as well as past, in order that we may discover and outline the processes of Life by which health is regained and maintained,—by which disease is produced and cured; which discussion is intended to yield a logical, consistent, and even obvious



## Vital Science

solution of the great problems of physiology and Medicine. And this is not impossible. The records of the past offer abundant encouragement for the future, and we propose a systematic investigation of the facts.

There are, as we have seen, before the world to-day but two opposing theories of existence,—Evolution and Involution,—only one of which, of course, can be the true one. The old theory of creation out of nothing by an Almighty Hand, in the space of six days, need not be here considered, as it is not now entertained by intelligent men. And yet we do not hesitate to assert that the Book gives a reasonable theory of Creation which accords with and explains all the facts as no other theory does. The scientific agnostics (if we may use the term) have been engaged in overthrowing the superstitions of ignorant men, all the while unconscious of the fact that Moses and Paul are the forerunners of modern scientific thought on the subject of Creation, as far as this is true. Moses, or whoever wrote the Genesis, describes the forming of the worlds, not necessarily out of nothing; but, rather,—a fact which science asserts and reason infers,—that Creation is the product of Law, and that before Law was chaos, not non-existence. Paul describes also the Genesis in words so clear, forcible, and pointed that no intelligent man need err. “By faith,” he says, “we understand that the worlds were framed by the word of God, so that things which are seen *were not made of things which do appear*” (Heb. xi. 3), and he has already defined faith to be the “conviction of things not seen,” a definition clearly applicable to scientific knowledge. We believe what we scientifically know, that the Sun

## Creation ; or, How the Work is Done

does not revolve around the Earth, for instance, and it will be found, as we proceed, that it has been the work of Science in all ages to revise our conclusions and correct our observations, proving that "what we see we don't see." The real truth is always believed, not seen. Paul's words might be otherwise translated to read, "We are convinced that God commanded the worlds into existence, making out of the invisible and intangible realities an obvious universe." Paul elsewhere declares that "the things which are seen are temporal, but the things which are not seen (principles) are eternal." How can the forces of Nature, invisible and indestructible as they are, have ever been created, if Paul knew what he was talking about?

66. But Paul is still more clear and explicit in his declarations regarding Creation: "For the invisible things of Him from the Creation of the World are clearly seen, being understood by the things that are made." (Rom. i. 20.) By this we learn that the "things made" declare the "things invisible" that were not made, which language, we believe, is to be accepted as meaning what it says and saying what it means, instead of having imported into it our own notions, or passing it over as meaningless, as some of our commentators do. Paul, therefore, confirms, instead of controverts, the doctrines of modern science, that what we see going on around and about us every day, declares what took place from the beginning.

67. The invisible realities from the beginning are therefore understood by the things that are made. What are the things that are made? The universe consists not simply of worlds revealed to us by either

## Vital Science

telescope or microscope, but of facts of observation and inference that are immediately open to us. There is the dwelling and the church, the watch and the locomotive, the plant and the tree, the horse and the man, each repeated ten million times for our use and instruction. And not only repeated for our use, but we have become co-workers in their production with the Great Creator. We make heat and light, electricity and magnetism, houses and locomotives, and even the production of trees, animals, and new human beings is confided to our care. What are the great underlying principles of universal production? All are parts of the one great whole, and all illustrate certain great principles which are common to all. These principles may be declared to be

WISDOM,  
POWER, AND  
THE REQUISITE MATERIALS.

68. In order to a truthful philosophy of existence as well as a successful science, we cannot too strongly urge the importance of maintaining the natural distinctions between the above requisites to successful work. The materials used in the construction of any machine, or the development of any organism, must not be confounded with the wisdom of direction or the power of work. The maker, the thing made, and the materials of construction are entirely distinct as far as human experience goes, as we shall presently see. It is always *power* that does the work, and always *wisdom* or intelligence that directs the power, which

## Creation ; or, How the Work is Done

operating upon matter changes it into other forms, or organizes it into other systems. No one can soberly dispute these truths, and yet great systems seem to ignore them.

69. But these distinctions are better expressed in more scientific phraseology thus :

LAW.—The Unchanging Wisdom,

FORCE.—The power that does the work,

MATTER.—The materials of construction.

We shall consider the last and least important member of this classification first. Matter is material ; its primal characteristic is inertia. No amount of sophistry can ever expunge this truth from the records of Science. The materialist tells us that matter is never at rest. True ; but it is well known that matter does not move itself, the capability of being moved is one of the leading thoughts involved in the idea of inertia. Force is the ever-present, intangible, invisible something that moves matter and constitutes the essential cause of all motion. Youmans, in his Chemistry, says, " That which moves matter and produces change is called power or force. Matter and force are inseparable. We know nothing of force except through matter, and nothing of matter except by its forces." Some have asserted, however, that force is only a property of matter ; they might even more properly assert that matter is only a property of force. We believe all thinking men will agree that matter, as we know it, is the product of force. We have already shown that Life is a force, observable, it is true, only in connection with matter, but entirely distinct from the

## Vital Science

matter, as proved by the fact that it is daily and hourly being separated from matter by death ; a thing which could not be if Life were not distinct from the matter which it leaves behind. Newton proved what Mr. Spencer urges, that every particle of matter in the universe is a storehouse of force ; and all human experience has shown that Newton was right. The wonderful developments of Chemistry in producing explosives demonstrate that the amount of force stored away in matter is far beyond what the human mind has heretofore appreciated, as witness the explosive power of dynamite, nitro-glycerin, gunpowder. And can any one suppose that the powers exhibited by these substances are only properties of the matter,—that is, that they have no positive existence ?

70. But while force is closely connected with matter and is the source of all its movements, it is even more closely united to the skill, wisdom, or law which originates and carries forward the work. Every intelligent human production begins in the conception of the plan, proceeds by virtue of human skill and power to carry out the plan, and in doing so operates upon the materials of construction. Brick and mortar and lumber are the materials which enter into the construction of the building, but what a perversion of thought to say that the brick and mortar made the building ! It was the skill and power of the architect and workmen that made it, the materials being inert in the workmen's hands. The same is true of watch, locomotive, or any other machine ; the skill of the workman is one thing ; the strength of the workman or the *power* supplied by machinery is another ; while



## Creation ; or, How the Work is Done

the material used, whether steel, iron, copper, or silver, is still another.

Why should not corresponding principles hold in the productions of Nature? Earth, air, and water are the materials that enter into the structure of the plant or tree, but it is a travesty on human language to say that they made the plant or tree. The production of a tree involves both Power and Wisdom, as well as materials, just as does the production of a building or a locomotive, the only difference being that the Wisdom displayed in this case is unchangeable,—a fixed method of work described by the term Law. The same truth is illustrated in the hatching of the egg. The material in this case is matter within the shell ; but the power and wisdom belong to and constitute the invisible principle called Life, as proved by the fact that one egg under the same hen brings forth a chick, the other one brings forth a duck, and the other explosive gases. Mr. Drummond's theory that environment is the chief thing, and Mr. Spencer's theory that it is everything, are absurdities. The environment and the material of all these eggs were exactly the same, while the result in each case was exactly different ; proving that it was neither environment nor material, but Life that was the real cause of the living development. The structure of a horse has come forth from hay and oats, but who dare say that hay and oats ever made a horse? Our learned professors should start a stock farm on this principle, for we are sure that if they went into the race-horse business they would make a great success in pitting compounds of hay and oats against thoroughbreds.

## Vital Science

71. The same principles apply to the growth of human beings. The food one eats, air he breathes, and water he drinks are the materials of growth which he shares with his family and neighbors, and yet the results are not at all uniform. The proof is complete to every honest mind that some other power than environment must explain the great difference in results. It is Life, inherited Life, which *makes* men; then why say that beefsteak *makes* muscle, or fish *makes* brains? The learned professors who write such nonsense ought to begin their work by eating a whale or two. A little common sense introduced into this so-called science, which is the crudest kind of nonsense, would stop this ignorant phraseology, but more ignorant theory, that is daily wafting men to destruction.

It is Life, inherited Life, that grows both trees, horses, and men through the operation of fixed and immutable laws, which illustrate the wisdom and unchangeableness of the Lawgiver. Law is the architect, Force is the workman; while earth, air, and water are the materials out of which come forth all things, living and dead.

72. But these truths may be still more clearly set forth under three similar heads:

CAUSES,  
OCCASIONS OR CONDITIONS,  
RESULTS.

Surely no one can doubt that these are entirely distinct from each other, just as distinct as are forces, motions, and matter. As we have already noted (§ 7),

## Creation ; or, How the Work is Done

a *cause* is defined to be "the power by which an event or thing is," "a principle from which an effect arises ;" while an *occasion* is defined as "an event which affords a person a reason or motive for doing something," also "an accidental or incidental cause." The verb "*occasion*" expresses the idea more clearly in that it means "to induce," "lead to or indirectly cause." The distinction, we are sure, is clear that to *cause* is to produce by virtue of a power that can produce, while to *occasion* is to supply an excuse or condition which calls forth the power. The result in any case, of course, depends both upon the *cause* and the *occasion*, but it must never be forgotten that it is the *cause* that supplies the *power* for the result, the *occasion* supplying only the incentive or condition for the operation of the power. So important is this subject, and so illustrative of the processes of creation, that we must examine it in further detail ; for around this central principle will be found to circle not simply Evolution as a philosophy, but as a science of immense practical import to human health and life. Medical systems as we have them to-day, wholly inductive as they are, illustrate the same fallacies of theory and practice as does Spencerian Evolution, and will stand or fall by the same principles.

In the quarry, near by, an explosion has just occurred, and great masses of rock are thrown high into the air. The result obtained was according to plan, and involved several preparatory steps : first, a crevice or hole *into* which the dynamite was placed ; second, a small percussion-cap placed *in* the dynamite ; and, third, the transmission of a spark of fire through

## Vital Science

a fuse or from an electric battery *into* the percussion-cap. All things being ready, the battery is connected with the wires leading to the cap, which explodes, and instantly a terrific explosion follows and masses of rock lie scattered around. Here we have "causes" and "occasions" so intermingled as to require careful thought to separate them. We note that one class of these were external to the work done, and another class were internal. The force that burst the rock had evidently been stored in the rock in the form of dynamite; the force that set off the dynamite was evidently stored *in* the percussion-cap within the dynamite; but the force that exploded the percussion-cap originated in the battery. The battery was the indirect cause or *occasion* for exploding the cap; the explosion of the cap was the "occasion" of the explosion of the dynamite; but no one can doubt that the real cause of the bursting of the rock was the liberation of the force stored *in* the dynamite, and not in the cap or galvanic battery. The process was one of evolution and not of involution; the *power* that did the work was not in the environment, and did not come from the outside,—that is, from the battery or cap,—but from within; it was the intrinsic power of the dynamite. Throughout the whole realm of chemistry the same principle is illustrated; the *power* that does the work comes invariably from within, while the *occasion* for the exhibition of the power is in the environment, supplied often by the chemist.

73. If we pursue these investigations into the realm of Mechanics, including Astronomy, we are compelled to the same conclusions. The *cause* of the Niagara

## Creation ; or, How the Work is Done

Falls is the gravity residing *in* the water which falls, but the *occasion* or condition for the fall of the water is the mountain of rock which obstructs its free passage to the sea. The *cause* of the motions of a water-wheel is also gravity stored *in* the water, but the *occasion* for its motion is the contrivance which carries the water into the wheel. The *cause* which speeds the locomotive is the pressure *in* the locomotive generated by the heat, while the *cause* which makes the heat is the combustion of coal. The *cause* of the motions of a watch is the force stored *in* its mainspring, but the *occasion* or condition for the peculiar motions is the arrangement of the cog-wheels. In all these cases, and in every other case, it will be noted that the real cause of the motion, development, or work done has been interior ; while the *occasion* has very generally, if not always, been external to it. Environment, or external influence, therefore, is the *occasion* or condition for great results ; but the real *cause* of the results is internal, making the process to be invariably evolution rather than involution.

74. But these truths will be more readily appreciated when considered in connection with living existence. It is with vital science, and therefore with organic evolution, that we deal, using the inorganic world only as illustration of what we may expect in the organic. We strike our horse with a whip, and he goes down the road at a 2.30 gait ; but we strike another horse with the same whip, and he goes at a ten-minute gait ; we strike still another horse, and he runs away. Was the whip the *cause* or only the *occasion* for these varied results. The Involution theory teaches that it was the



## Vital Science

*cause*; for Environment is always the cause in that system; we here teach that the whip was the *occasion* only, the real cause being the spirit and power residing *in* the horse. We cast a stone at a dog, and he runs from us or runs at us, and Involution says the stone did it. We affirm that the stone was only the *occasion*, the *cause* being inherent in the nature of the dog. We plant two trees in the same soil and give them the same care, and one yields us chestnuts and the other apples. Was it Environment or innate character that made the difference? We hatch eggs in the same Environment and get ducks, chickens, geese, turkeys, and our philosophers tell us that Environment did it. On the contrary, we declare that the process was *evolution* and the cause was *innate*. We give two men a half-pint of whiskey each, and one becomes for the time a drivelling idiot and the other a raving madman. Was the whiskey the *cause* or only the *occasion*? Did the whiskey give the strength and violence or only call forth the strength and violence? But we give the same whiskey in smaller dose to a feeble patient, and he becomes stronger, pulse fuller, with everywhere apparent increase of vigor. Did the whiskey *give* him strength or only *occasion* strength? If the violence of the madman was from his inherent power and nature, the whiskey only occasioning the excitement, why does not the apparently increased vigor of the sick man come the same way? Why is it not simply the appearance of power,—power drawn from the patient, and not increased strength supplied to the patient? We shall ask and answer the question by and by whether whiskey or any other tonic or stimulant ever gives or

## Creation ; or, How the Work is Done

causes strength to patients, or only occasions an exhibition and waste of what power they previously had, and shall chronicle the greatest delusion that ever afflicted the human race. It can be proved beyond reasonable controversy that the appearance of strength—the feeling of strength—is always coincident with, and the result of its expenditure, while the conservation of energy in a patient, as in every other natural object, is coincident with its disappearance. It is for this reason that excitement, labor, business, gives to men a feeling of vigor to be followed in feeble persons by exhaustion, while sleep and rest take away the feeling of vigor to be followed by recuperation. But we must not anticipate ; for a full and explicit examination of this part of our subject the reader is referred to Chapters X., XI., XII., XIII.

75. And now to complete the study of this subject, allow us to further consider it under the heads

### CAUSES, PROCESSES, AND EFFECTS.

By every principle of reason and common sense, therefore, we are compelled to the conclusion that *causes are forces* existing *in* the thing that does the work, and the process is evolution, not of matter but of the forces that operate upon and through the matter. The effect is the change in the matter, due to the *power* of change which constitutes the cause.

Further, we note that Force is always invisible, its existence being known only by its effects. Effects, on the

## Vital Science

contrary, as far as we appreciate them, are generally visible, or obvious, making them much more readily apprehended than are the forces that produce them. We see or feel the effects, but we can *reason* only of forces. The result is that thoughtless people live in the apparent and too often unreal; while the real world is apprehended by prudent and thoughtful people only. When the thoughtless man sees a rosebud unfold into a rose he perhaps imagines that the material of the bud unfolded itself, but reason tells us that it unfolded because of the operation of an invisible power. Mr. Drummond says the power of unfolding resides in the Environment, while we are urging that the process is Evolution because the power is *in* the bud. If the power is in the Environment, the process would be Involution, and we would never know whether the bud would come forth a rose, a lily, or a chestnut; but as the power resides in the nature of the bud, we know just what to expect. And this brings us to another consideration,—viz. :

76. Force in order to do work must be either *intelligently* or *persistently* applied. All *human* productions illustrate force *intelligently* applied, as in the building of a house, a machine, or other operation of human work, while *Nature's* operations are all carried forward by force *persistently* applied, which really means applied under the direction of law. In any case force is the absolutely necessary prerequisite to work, and this force must be *directed* if we would have definite results. Human wisdom directs to human purposes, but in Nature a larger wisdom is displayed. The Silent Partner in creation, who supplies both material and

## Creation ; or, How the Work is Done

capital, has ordained the utmost stability and certainty in Nature's processes, so that man may know with certainty just what he may or may not achieve under the proper conditions. The storehouses of Force are abundant, and this works with the utmost persistence to the accomplishment of the purposes intended, so that man becomes the administrator of Nature's resources as soon as he has learned the law by which she works.

77. But Nature's forces do not persist in one direction only ; the Creator was not satisfied to make a material universe simply ; but having compounded the elements into tangible substances, He proceeded to separate these into innumerable spheres, setting them all in motion and giving to each its proper relations to all the others,—the Sun to give light and heat, the Moon to reflect her light, the Earth and other planets to bring forth countless myriads of living forms. At least three separate and distinct laws were necessary to these purposes, and we will find that Force persists in at least three distinct directions. The loving Father is the silent partner in carrying forward the affairs of Earth, and has contributed to the business of earthly evolution natural force in abundant measure under the direction and control of a trinity of immutable laws, causing human heritage to be an exhaustless quantity of definite quality of Wisdom sustained by Power.

78. The Process, we have repeatedly shown, is Evolution,—the unfolding not of the materials of existence but of Wisdom and Power, which being known to us as Law and Force are always found internal to the things produced, whether we consider the universe as

## Vital Science

a whole or any part of it, "down even to the components of every inference and every observation," as Mr. Spencer observes. A plant is the unfolding of plant life, showing itself in the materials which it appropriates from earth, air, and water, but is distinct from earth, air, and water just as a man is distinct from the clothes he wears. And Life is constituted of a force called Vital Force under the direction of Life's Great Law. The grand result is the universe existing in three separate and distinct departments, each of which is still in process of development under the direction and control in large measure of the active partner in Creation,—Man. To be sure, Man has made bungling work of it so far; but inasmuch as the growth and development of the child and heir is of much more consequence than the goods he inherits, the wise parent is willing that he may even squander his fortune if that is necessary to teach him wisdom. To "become as gods knowing good and evil," and knowing enough to cleave to the one and eschew the other, is a destiny that is worth all that it costs. Whether your son starts life as a millionaire or as a penniless student is of no consequence except as to do so tends to make or unmake the man.

As the process of Creation, therefore, consists in the evolution of interior principles which are made to show forth through a material universe, and as all are parts of one stupendous whole, so each part must be in perfect analogy with all other parts not only, but perfectly illustrative of the Source from whence they come. The universe itself, as even the agnostics admit, must be the evolution of a great primal principle



## Creation ; or, How the Work is Done

of Existence, generally acknowledged in science as the Great First Cause. Because He is Infinite is no good reason for disconnecting Him from His Universe, nor can He be ignored in any true philosophy or science. He appears as the Lawgiver, whose laws illustrate His character, of which stability, certainty, immutability, are the chief characteristics, and, if congruity is universal, He performs His work as any other intelligence performs it, through the use of power, wisely directed, operating upon the necessary materials.

79. A knowledge of the directing principle is the important consideration. A law once discovered continues for all time a fixed centre from which we may deduce conclusions, and carry on practice, with a certainty that knows no variation ; and we repudiate with the utmost earnestness the theory that this thing which has in all ages proved to have such wonderful influence on human knowledge, is simply another "mode of motion." We have, on the contrary, clearly shown (§ 12) that law, in the larger sense, is the decree of an unchangeable Lawgiver, and, therefore, not only describes how things have been done, but in that very fact *prescribes* how they shall be done.

80. Thus far we have appealed chiefly to the testimony of reason, referring only occasionally to both scientific and biblical records for testimony, not considered *authoritative*, but *suggestive* of the great truths we have been seeking to establish. We now crave the reader's indulgence while we return to a more detailed examination of the Mosaic record as suggestive of still more definite truths which we propose to establish in other ways in succeeding chapters. The Mosaic

## Vital Science

record teaches, if it teaches anything, *Creation by Law*.\* We first read, "In the beginning, God" (the other name for Great First Cause), who said, "Let there be Light, and there was Light." In these words we surely read the decree of Omnipotence; that the Lawgiver established the great Law of Light cannot be successfully controverted.

81. But what this Law of Light *is* the record fails to explain. Very likely the inspired writer didn't know himself, and if he had known, how should he have put his words into form so that they should be better understood than they have been? Language must first be formed, and ideas become fixed, before we can understand any writer's doctrines. Knowledge is always a prerequisite to knowledge; truth alone can beget truth, as Life alone begets Life. We must always know something before we can learn something more, so that though the Book told the story of Creation four thousand years ago, it is only now, after Science has demonstrated her great truths, that we may begin to interpret the story of Creation as described in the Mosaic record. Science has demonstrated that all things, past and present, are the product of Law; and throwing to the winds our agnosticism, we learn how the law came to be; God said, "Let there be Light, and there was Light."

If such a law was thus established, it must still be in operation, for the Lawgiver is unchangeable.

---

\* The Greek word *bara*, means to prepare, form, fashion, and who can doubt that Law formed the worlds? The record is entirely silent as to what they were formed out of.

## Creation ; or, How the Work is Done

Has Science discovered such a law? Undoubtedly she has, but just what this law of Light is, is not even yet fully determined. It must be a primal law of Nature, and not simply an observed order of phenomena. Like the primal forces, it is "immediately produced" by the "Unconditioned Reality," and is, therefore, not producible in Nature. We shall learn in a succeeding chapter that there are three great primal *forces* of Nature, coincident with their primal laws, Chemical Affinity, Gravitation, and Life's Great Law, and that these terms are applied to laws quite as generally as to forces. Chemical Affinity, we shall discover, is the great primal force, and corresponding primal law of Nature, so that we are at once led to infer that the great Law of Light is Chemical Affinity. No one doubts the existence of such law, and that it is one great source of light is evident, but is it the great Law of Light? We are aware of the fact that Scientists have very generally abandoned the theory that the light of the Sun is the product of Chemical Affinity. Perhaps they are mistaken, and it may yet be proved that the Sun's light and heat are the product of this great law, sustained by its corresponding force. If this shall happen, it will not be the first time in the history of Science when pure theory has declared the existence of facts that could be obtained in no other way. Possibly, however, this great Law of Light may mean simply the law by which the invisible realm was caused to develop into an obvious universe. Science has well proved that Chemical Affinity is the great basic law of created existence. It has formed the crust of the Earth, has developed

## Vital Science

the constitution of the planets, combined the invisible gases, oxygen and hydrogen, into water ; in a word, has produced a visible universe out of invisible potencies which were eternally before it.

82. But though Chemical Affinity has produced visible and tangible matter, the universe was still in a state of disorder. Matter held no definite relations to matter ; “without form and void” was the fact of existence even though nebulous matter had appeared. Another law which should stretch out the Heavens, establish a foundation for the worlds, gather the waters together, was necessary in order to carry out the great plan of the greater Self-existence. The other law is very naturally the law of the Firmament, now known as Gravitation. Can the reader conceive of any other way by which the worlds were swung into place, except by the power that keeps them in place ? Or the waters are gathered together into lakes and seas, and “dry land” made to appear, except by Gravitation, the same power which we have shown now causes the mists above us to fall to earth as drops of rain ? And if Gravitation has condensed the mists into revolving drops of rain, why should it not condense the *nebulæ* into revolving worlds ?

83. But what a dismal abortion Creation would have been if it failed to include its crowning feature,—Life and Mind, two words to describe the same thing ! We know not how to separate Life and Mind ; indeed, we shall learn that they are inseparable,—wherever Life is, Mind is, wherever Mind is, Life is. Living existence is the complement of Creation, the eternal fulness of universal existence. Shall the pro-

## Creation ; or, How the Work is Done

cesses of its creation differ from the processes which preceded it? or shall there be perfect analogy? In the language of the Genesis, the answer is, God said, "Let the Earth bring forth grass, the herb yielding seed, and the fruit-tree yielding fruit after its kind." Have we not here another decree, another law, which carries within it the promise and potency of living existence? Life's Great Law, we shall see, is the perfect analogue of Gravitation and Chemical Affinity, and completes the circle of Created Existence, rendering possible a true and logical philosophy side by side with the logical sciences.

84. Science confirms what Revelation declares, that Nature exists, and is to be studied in her three fundamental departments,

THE CHEMICAL,  
THE MECHANICAL, AND  
THE VITAL.

These are the divisions of Sir John Herschel, who studied nature and developed science before modern agnosticism began to sweep the foundations from the stores of human knowledge and remand us to the chaos from whence we came. Until Spencer classification was one of the principal means of arriving at the truth, and the divisions of Nature as indicated were of unquestioned value in leading to a knowledge of her processes. We return to the facts which are of higher authority than either Spencer or Herschel, and no unprejudiced mind can dispute that Nature exists, and is to be studied,



## Vital Science

In her atomic constitution—Chemistry ;  
In her Mechanical relations—Mechanics including astronomy ;  
In her vital department—the department of Living Existence.

This classification is not a subjective conception having no basis in Nature, but is exactly descriptive of Nature in her fundamental departments, and this would seem to be the meaning of the words, “and the evening and the morning were the first day,”—the second day, third day. The intervening space was night, not day, and night meant, it is believed, simply that the laws promulgated were distinct and separate from each other. Gravitation has no connection with Chemical Affinity, nor Life's Great Law or Force with either, notwithstanding they all deal with the same matter at the same time. “Every particle of matter in the universe,” Newton proved, is under the control of Gravitation ; but it is under the dominion of Chemical Affinity at the same time, and all living matter is dominated by Life's Great Law, which is the superior of both but which nullifies neither. The absurdity of modern effort, therefore, to generate Life by chemical processes is quite as evident as the alchemist's attempts to transmute the baser metals into gold.

85. But the most important consideration in connection with this subject is yet to be noted,—viz., that every effect, phenomenon, result, process, and operation in the universe is directly traceable to one or the other of these laws. All are traceable to the Great First Cause, the one, great, self-existent and eternal Lawgiver, but this Great First Cause manifests Him-

## Creation ; or, How the Work is Done

self in Nature, not by a single law, but by a trinity of laws, which, sustained by the forces of Omnipotence, account for all that is.

86. And this statement means more than at first appears ; it represents a simplicity and a certainty that the philosophies have sought in vain, and yet so evident that a wayfaring man though a fool need not err therein.

It is not generally appreciated, that every change taking place in the relations of *masses* of matter to each other throughout the universe is under the control of one single, individual law sustained by its proper force. And this means that Gravitation is the real power that floats the balloon or dashes it to the Earth, that brings the rains down and carries the mists up (§ 114), that floats the ship or sinks it, that enables the man to swim or drowns him. It is the power that makes effective the lever, that runs the water-wheel and windmill, and everywhere produces all sorts of motions, similar or opposite, as the occasion or condition shall determine. It was seen in the previous chapter that though the Great First Cause is absolutely unchangeable, that very fact makes the results of communion with Him to be infinitely certain, the results depending entirely upon the conditions we supply. The same truth holds good in dealing with His unchangeable laws ; the result depends wholly upon the conditions we supply. If we supply the conditions for flight in the balloon, Gravitation will fly us, but if the conditions are for destruction, it will kill us. The same truth holds good in the Chemical world. Chemical Affinity makes dynamite and ex-

## Vital Science

plodes it; it is the basis of gunpowder, and it explodes gunpowder. It makes acids and destroys them; makes out of the most harmless substances the most dangerous and deadly compounds. In a word, every change taking place in the atomic constitution of matter in the universe, is effected by the one law under the control of the one force. Just so it will be our privilege and pleasure to show that from one great, all-controlling law of life all the varied activities of the living world, from the growth of a blade of grass to the sickness and death of a man or an elephant, are derived. It will not be so difficult to convince either the lay or professional reader that all the functions of the living organism in health occur in response to, or under the control of, one great law, but when it is urged that every symptom of disease, every fact of pathology, takes place under direction of the same law, there will be undoubted demurrer. And yet this is what we affirm, that no symptom of health or disease, no pain or pleasure, weakness or strength, is ever found in a living organism except under the control and direction of the one law, sustained by the one power,—the law that solves all physiological and medical problems, and gives, for the first time in the history of Medicine, a consistent, reasonable, and demonstrably true explanation of all its problems. If we supply the conditions for health, health will follow with unerring certainty; but if the conditions are for disease, disease will sooner or later follow as the Law of Vital Accommodation will permit. Chapter IX. will be devoted to a formulary of this law, the proof of its existence and the range of its applicability;

## Creation ; or, How the Work is Done

in the mean time we proceed to consider the work of the last half of the creative week as set forth in the Genesis.

87. It is worthy of note that the foundations for universal existence having been laid, the great Law-giver is reported to have continued the process of creation, by practically applying the principles already established. The Sun, an immense orb of fire, could give light and heat only because of the operations of Chemical Affinity and Gravitation, there being no other conceivable means by which we can enjoy these blessings. And Earth and Moon and planets could roll around this great orb only by virtue of Gravitation, and light and heat would be useless for the Earth unless there was Life to enjoy the light and heat. The fourth day's work, therefore, consisted in bringing into existence the necessary conditions for the operation of the laws already promulgated to the production of material existence, the establishment of the facts of chemistry and astronomy. Then comes forth bird and fish, and finally animals and man, through the operation of Life's Great Law.

We cite these facts not as authoritative declarations of creative energy, but only for the purpose of suggesting that man was probably a special creation in some sense. That he was destitute of the power, wisdom, intelligence, or goodness that he now possesses we think the record shows, but that man is only a developed monkey, and tailless at that, as Mr. Drummond teaches we can at least say is not proved.

## CHAPTER VI.

### THE COSMOS ; OR, THE CONSTITUTION OF NATURE.

“ Grave errors have been entertained as to what is really intended to be conserved by the doctrine of conservation. This exposition I hope will tend to remove them.”—JOHN TYNDALL on the “ Constitution of Nature.”

88. FORCE, Motion, and Matter are, in accordance with the doctrines of Modern Science, sustained by the facts of common observation, the constituent elements of material existence. Force is the cause of all material things,—a postulate concerning which there cannot be a reasonable, dissentient voice ; Motion, called also Energy, the first effect of the Force, is the process—of all existence,—is Force, under direction of Law, in process of doing work ; while Matter, as we know it, in its varied forms, is the product. Cause, Process, and Product, otherwise Force, Motion, and Matter, and their relations to each other, is the subject immediately before us,—a subject which, though apparently quite simple, involves, nevertheless, a consideration of the great fundamental questions of existence, which, while they never have been satisfactorily explained, and perhaps never will be, have of late years become so confused that the most contradictory doctrines have been advocated.

89. The great error, in our opinion, consists in confounding Motion with Force. (§ 9.) They are not iden-



## The Cosmos ; or, The Constitution of Nature

tical.\* In a previous chapter, it is true, we gave to Force the comprehensive definition, "that which does work,"—a definition which would undoubtedly apply to Motion; but Motion is always secondary to the Force. It is the *process* of which Force is the *cause*, and Matter, or material forms, in their infinite variety, is the *effect*. And while Motion exists between cause and effect, and is dependent upon both, it will not do to confound it with either. Here is the starting-point of Herbert Spencer's wide divergence from the truth. It is the same error that makes Professor Joseph Le Conte become the ardent advocate of Agnostic Evolution. Yet both these men admit that they do not fully understand the subject. Both agree that there are two kinds of Force, one of which they properly name Energy or Motion, while the other, Mr. Spencer says, "has no specific name." It needs none. It is real, intrinsic Force, the basis of created existence, which Motion is not. Motion is the process of doing work, while Force is the cause of the process. The utter impropriety of using the terms interchangeably must be evident. Words hold the same relation to Science that

---

\* Rev. Wm. I. Gill has written an exceedingly interesting work, entitled "Evolution and Progress," in which he claims to give convincing proof of Spencerian Evolution. We quote a couple of illustrative headings: § 5, "Matter known only as Force;" § 9, "All Motion is Force." On such assertions Agnostic Evolution is built. Admit the premises and you admit all. Imagine Watts building a steam-engine on the assertion,—All steam is water. True, but it is something more than water. All Motion is Force, but it is something more than Force. On the same principle alcohol is food and flour is wheat. Spencerian Evolution can live only by closing our eyes to the natural distinctions between things.

## Vital Science

figures do to mathematics, and it is just as reasonable to use interchangeably the figures 1, 2, or 10, as to use the terms Motion and Force interchangeably. Yet Professor Le Conte, when undertaking to show that "Vital is transformed physical and chemical forces," says in an explanatory foot-note ("International Scientific Series," Vol. VII.),—

"In recent works the word energy is used to designate active or working, as distinguished from passive or non-working force. It is in this working condition only that force is conserved, and therefore Conservation of Energy is the proper expression. Nevertheless, since the distinction between force and energy is imperfectly or not at all defined in the higher forms of force, and especially in the domain of life, I have preferred in this article to use the word 'force' in the general sense usual until recently. I may sometimes use the word energy instead. If any one should charge me with want of precision in language, my answer is, Our language cannot be more precise until our ideas in this department are far clearer than now."

90. Thus we find Le Conte repeating Herbert Spencer in dividing Force into two classes, active and passive, or working and non-working force, and admits that only the one kind is *conserved*, or, as Mr. Spencer terms it, *transformed*; and yet, still following Spencer, he persists in drawing conclusions from the one term used to designate two entirely different things. Had he undertaken to show that *vital energy* is the product of *physical energies* our objections would be less serious, but when he proceeds to put Energy or Motion in the same class with Force, and use the terms interchangeably as a basis for the development of important doctrines, it is but just that we demur to both process and conclusion. For instance, when proceeding

## The Cosmos ; or, The Constitution of Nature

to show "The obstacle removed" which had heretofore prevented the establishment of the Evolution theory, he says (Evolution by Le Conte),—

"Until about forty years ago the different forces of Nature, such as gravity, electricity, magnetism, light, heat, chemical affinity, etc., were supposed to be entirely distinct. . . . About that time it began to be evident, and is now universally acknowledged, that all these forces are but different *forms* of one, universal, omnipresent energy, and are transmutable unto one another back and forth without loss. This is the doctrine of correlation of forces and conservation of energy, one of the grandest ideas of modern times."

91. Here we have gravity and heat, chemical affinity and light, as well as electricity and magnetism, all placed in the same category, and all transmutable into each other. Well might Professor Tyndall exclaim, "But ambiguity in the use of the term 'force' makes itself more and more felt as we proceed." To place Gravitation and Chemical Affinity in the same category with light and heat is an incongruity of the scientific mind that is, to say the least, surprising. Heat and light are the *products* of Chemical Affinity and Gravitation, and under no circumstances can ever be transmuted into them. If they could, the heating of a piece of iron would add to its gravity, and all things would weigh much more heavily under the rays of a burning sun than they would at midnight. The assertion, as we shall see, that light and heat are transmutable into Vital Force is equally at variance with the facts. Indeed, we are sure that it will finally appear incomprehensible that intelligent men could have made such serious mistakes on so important a subject as the forces of Nature. The error originated, no doubt, in

## Vital Science

the erroneous conception, which Le Conte says is the product of the last forty years, that "all forces are but different *forms* of one, universal, omnipresent energy." This is the energy which Mr. Spencer says "has no specific name." It is rather conceived to be a fountain in Nature which appears now as Gravitation, then as Chemical Affinity, anon as heat or light, electricity or magnetism,—the very statement of which exposes an incongruity. Gravitation and Chemical Affinity are not energies derived from the one force, but they are themselves primary forces, inherent in the very nature of things, while heat, light, electricity, magnetism, etc., are "modes of motion" produced from these primary forces, as Professor Tyndall clearly shows. And while he does not clearly dispute the transformation of forces, he definitely shows that neither Chemical Affinity nor Gravitation can be transmuted into anything else. "In no case," he says, "is the force which produces motion annihilated or changed into anything else."\* Gravitation and Chemical Affinity produce heat, but in no proper sense are they transformed or converted into heat.

92. A careful study of the subjects of Force and Motion, and their relations, has compelled us to the conclusion that there are in Nature three distinct primal forces,—Gravitation, Chemical Affinity, and Vital Force. From these have been developed a multitude of energies or motions, potential and dynamic, which, *unlike* forces, are constantly changing, but which, *like* forces, are capable of doing work, so that

---

\* The Constitution of Nature.

## The Cosmos ; or, The Constitution of Nature

we are compelled to divide the forces of Nature into two classes, the primary and secondary. The former is real, intrinsic Force, and being intrinsic, it is not transformable, but constitutes that unchangeable "ultimate of ultimates" which is inherent in the nature of things ; while that other source of work which is constantly varying and changing, and is producible from Force, we shall call secondary Force or Motion. To distinguish between these and establish their respective existence and work we proceed to note that

Primary forces are not producible by any means known to man, while

Secondary forces are not only producible, but would seem to exist only as productions of Nature.

These facts surely justify our refusal to place them in the same category. Gravitation, we shall see, is the great representative primary force, with heat as the great secondary force. Scientists continually speculate as to the cause of the Sun's heat, which they ascribe now to Gravitation and anon to Chemical Affinity, but we never read any discussions as to the source of the Sun's affinity or gravity. These forces are admitted to be primary and independent, while heat is equally conceived to be secondary and dependent upon force that is primary. Professor Tyndall suggests that possibly all the heat in the universe is due to Gravitation ; he seems to have forgotten his declaration that Chemical Affinity is also a source of heat.

93. Force differs from Energy or Motion also by being invisible and intangible, known only by its



## Vital Science

effects, as are all real causes, while Motion is often a fact of observation. It is Mr. Spencer who asserts that "Motion and Matter are differently conditioned manifestations of Force." The forces of Nature are *in* Nature, a great triune reality, the cause and source of all motions and all productions, the motion being the process of transferring the force from one condition of matter to another.

94. Did these forces create *matter*, or is *matter* eternal? Science and Revelation agree in affirming that they did in the beginning just what they are still doing, bringing forth from the invisible realm all created things. Further than this we have no warrant for believing; something out of nothing, even by Omnipotence, is nowhere taught in either Science or Revelation. "The invisible things of Him from the creation of the world are . . . understood by the things that are made," is the way Paul puts it. And Science confirms what common sense suggests, that things are now made by the use of Force under the direction of Law, so that we are justified in inferring the same principles of operation throughout the ages. We have, we believe, clearly shown that the Unchangeable Creator has not changed the order of His work. What other power could have produced a rock, a plant, or a man than the power which now produces it? And what other process than the process now in operation? What power or method could have swung the worlds into place other than that which keeps them in place? \* The persistence of Force, as

---

\* It is believed that the theory of clouds and rain (§§ 20, 40) gives the key to the revolutions of the planets. If the cooling of the clouds

## The Cosmos ; or, The Constitution of Nature

well as the unchangeable character of Law, is a necessary inference from the facts.

95. If we proceed now to discover what forces created the worlds, we are led to inquire what forces remain in them as necessary to their existence ; and *vice versa*, if we would discover what forces remain in the worlds, or in any part of them, we have only to learn what forces were necessary to their production. Force can neither be weighed, measured, nor observed ; invisible and intangible, we know of it only by its effects, which effects always include the force that produces them. Just as any compound includes the elements and forces that made the compound,—just as every product includes the factors that constitute the product ; so the worlds include and enclose all the factors that have produced them, of which force is the first and all-important. Mr. Spencer refers to Gravitation as the great representative force. He says, “ Force is our ultimate measure of matter, and the quantity of matter is finally determinable by the quantity of gravitative force it manifests.”\* And this is the proof, he further shows, that matter is indestructible ; it is indestructible because force is indestructible, because force is persistent. Since the discoveries of Sir Isaac Newton, Gravitation has obtained such a place in Nature that it would be a work

---

is the occasion for Gravitation to bring them down in the form of revolving rain-drops, why not the cooling of the nebulae permit Gravitation to condense the worlds into revolving bodies, which have not fallen only because there is no large attracting body to overpower the present arrangement.

\* First Principles, § 61.

## Vital Science

of supererogation to undertake by any arguments to show that it is one of Nature's primal forces. But it is not the only one; nor is it the first. Gravitation swung the worlds into place and now maintains them in their revolutions. It gathered the waters together, and now preserves them in rivers, lakes, and seas, distinct from the "dry land." It brings down the rain to water the Earth, and, Mr. Spencer to the contrary notwithstanding, it lifts the mists into clouds. (§ 39.)

But there must have been material compounds before the worlds could have revolved, and water before there could have been river, lake, or sea, and Science demonstrates to-day that all these are the products of another force, known as Chemical Affinity, under direction of other laws. If Chemical Affinity makes water now, it has always made it; and if it be necessary that Gravitation shall remain to preserve the revolutions of the planets, it is just as necessary that Chemical Affinity shall remain persistently in all elements and in all compounds, to preserve the latter or to change them into other forms. Chemical Affinity is, therefore, by every consideration a primal force, existing in Matter side by side with Gravitation, and just as necessary to its continued existence as is Gravitation. In other words, as the only evidence that Matter exists *en masse* is the gravity it manifests, so the only evidence that Matter exists in an elementary state is its power of combination with other elements to form other and unlike compounds. Let us imagine, if we can, that the power of combination should depart in any degree from oxygen or carbon because of their being combined. The thought is inconceivable.

## The Cosmos ; or, The Constitution of Nature

The only knowledge we have of oxygen is through its power of combination ; to destroy the affinity would be to destroy well-nigh all material existence, just as would the destruction of Gravitation. Stability of combination and unchangeableness of ratios is a primal fact of chemistry. In the face of these facts it were a work of supererogation to inquire if Nature's primal forces are transformable into each other. As each is necessary to the constitution of Matter, and as Matter is indestructible, so these forces are persistent, and, therefore, cannot be transformed without destroying the Matter.

96. And now we proceed to inquire if there is observable in Nature any other force which answers to the requirements of a primal force,—viz., *Producible only from the Unconditioned Reality or Unknowable Realm*, and, therefore,

*First*, Non-producible in Nature ;

*Second*, Non-transformable from or into anything else ;

*Third*, Indestructible ; and

*Fourth*, Necessary to the existence of Nature as we find her.

Chemical Affinity and Gravitation, as we have seen, answer to all these requirements (though we shall be further called upon to disprove contrary claims with regard to Chemical Affinity), being neither producible, destructible, nor transformable, while without them natural existence is impossible. We inquire now if they account for all things. Common observation shows that there is before us another realm, which, while subject to the laws and forces of the physical

## Vital Science

realm, can neither be produced nor controlled by these laws and forces. Chemical Affinity and Gravitation constitute the forces of the inorganic world, and answer to all its requirements for continued existence and constant change; but they do not answer to the requirements of the *organic* realm. From them all purely inorganic energies, motions, processes, are derived; but it is admitted that the inorganic realm constitutes but one, and perhaps the least important department of Nature, the organic world representing the complement and fulness of natural existence. It is the source of this realm, and especially of living existence, that we are now interested in. Shall we conceive the organic world to be a mere incident of Nature, produced from the inorganic realm through the operation of the inorganic forces, or shall we consider it a department or primal division of natural existence? If it is a primal division, then it must be the product of a primal force. It were incongruous with all facts and knowledge to produce a primal department through secondary forces,—to make one-half, and perhaps the most important half, of existence to be a mere incident of previous operations, the product of incidental, destructible, and changeable forces. For this is the doctrine of the philosophy we controvert. Material things, it admits, are the product of forces “immediately produced” by “the Unconditioned Reality” or Great First Cause, but living existence, only happened to be,—the product of a fortuitous concatenation of circumstances. The unreasonableness of such position must be evident. We prefer the theory that Nature is consistent; that the organic, and most



## The Cosmos ; or, The Constitution of Nature

important half of created existence, is perfectly analogous with its sister-half,—the inorganic,—in so far at least as its production is concerned. We prefer to consider it as primal division of Nature, the product of a primal force derived directly, instead of indirectly, from the Cause of all. If this is not the true position, then the division of natural existence into inorganic and organic departments is an improper one, which no one ever before suspected, in that it makes the organic realm to be a subdivision of the inorganic.

97. The force which has produced this organic realm is known as Vital Force. This, at least, is the force which now produces all living things, and as far as observation goes, all organic matter.\* Not until the chemist proves himself able to produce in his crucible a grain of wheat that will grow, or a viable egg from the elements of matter, will we be justified in abandoning the use of the term Vital Force, and in surrendering the idea that the organic realm is a fundamental department of natural existence. In the mean time we continue the inquiry, Whence comes Vital Force,—the real, essential power of Life,—that which produces, repairs, and maintains in existence vital organisms? Vital energies or motions is another subject,—Is motion derived from Vital Force, just as heat, electricity, etc., are derived from, but not identical with, Gravita-

---

\* Chemists have so far succeeded in their attempts to produce organic matter by chemical processes as to have produced a compound of the same chemical constituents as the urea of animal urine. Urea is the product of decomposition in an organism which employs chemical as well as mechanical processes in carrying forward its operations, and being the product of decomposition, it is entirely reasonable to suppose that it is a chemical quite as much as it is an organic product.

## Vital Science

tion and Chemical Affinity? Our inquiry is as to the source of Vital Force, the power of Life. The only reasonable answer is that it comes to-day as it has always come, from previous Life, whether we consider life in general or the particular Vital Force that makes up the life of the organism. Living forms from living forms, whether the form be bioplast or cell, organ or organism, is a fact of observation which continues beyond dispute. Life is reproduced both *in* and *from* the living organism, but it cannot be originated, as every recurring fact of existence shows.

And no creator or creature can give to another more than he himself possesses, a truth which will apply all along the chain of reproductive causes until we reach the Great First Cause, who is, therefore, necessarily a living existence,—Infinite, Incomprehensible, Eternal. Neither Life as a whole, nor any part of it, can be produced in Nature, nor from anything in Nature that is less efficient than itself. The "spontaneous generation" theory has been abandoned by all thinkers; the time has come when the transformation doctrines should be equally abandoned. If Life *de novo* cannot be produced from the inorganic forces, what reason can there be to believe that Vital Force, the power and source of Life, can be so produced? If the artist may not endow his statue with life and breath, where is the chemist who can endow the cell with its wondrous power to reproduce itself, and by processes of segmentation and proliferation construct the mechanism of horse or man?

Life only from Life is a fact of observation which human reason cannot resist. Only "overwhelming

## The Cosmos ; or, The Constitution of Nature

bias," determined upon maintaining a theory, right or wrong, can continue to teach that "Vital is transformed physical and chemical forces." Vital Force, as well as Life *de novo*, is a development of Vital Force, just as knowledge is from knowledge, Science from Science, wisdom from wisdom. Like begets Like the world over. Human ingenuity can no more transform the baser forces into Life than the Alchemists could transmute the baser metals into gold, and we have the same reason for using the term "baser forces" that we have for the use of the term "baser metals." The attempt to get something out of nothing, or what is the exact equivalent, to get something of a higher order out of a lower order of existence,—to barter something of less for something of higher values,—is a practice not confined to philosophy, but it is unphilosophic. On the contrary, to get *something* we must have *something* to start with, and the thing which comes can never exceed the source from whence it came. Even *infinite* gravitative power could not beget a *human mind*. So fish cannot make brains, nor brains secrete thought, even though the fish may be the material that enters into the construction of brains, and brains are the organs through which thought is expressed. (§ 68.) Brains do not secrete thought nor the liver bile, as some would have us believe. (§ 71.) Behind the brains, and behind the liver, is an intelligence which, having made these organs, now uses them. The "hidden artist," as Mr. Huxley denominates him (§ 156), having built the organism to suit his purposes, continues to use that organism for his purposes. The plant comes only from seed, but not primarily from the *material* of the seed ;

## Vital Science

the animal comes from the egg, but not chiefly from the *material* of the egg; the rose comes from the rose-bush, but not alone from the *material* of the bud. To prove how true all this is we need only to expose to great heat the bud, seed, or egg, so that while all the material remains, the Life having disappeared, no development can follow. Existence is made up of *Force* as well as of *Material*, of *Mind* as well as of *Matter*, of *Conditions* and *Occasions* as well as of *Causes*, and it is always important to distinguish between them. (§§ 72, 73, 74.) The causes of things, we have seen, are always internal and invisible, *occasions* or *conditions* are usually external, while the materials of construction are usually tangible and visible,—the subject of observation.

98. And now as to the indestructibility of Vital Force. If it may not be produced in Nature, neither can it be destroyed. If it be a primary force, the source of a primal department of Nature, then it must be persistent, indestructible, immortal, as are all other primary forces. And thus we have entered the real battle-ground of the opposing philosophies. If Life is simply a "mode of motion," transformed from other motions or forces, and all our thoughts and feelings are but new forms of the external forces, as Mr. Spencer teaches, then, of course, when the motion ceases the Life is ended. And this really seems to be in accordance with the facts of observation. Appearances are certainly against the theory that Life is persistent. If we may trust to observation, sensation, appearance, the philosophy here advocated is a fallacy and a falsity. But we have clearly shown that we cannot depend

## The Cosmos; or, The Constitution of Nature

upon what we see or feel. It has been the work of Science in all ages to correct observation and demonstrate that appearances are deceptive. "Things are not what they seem" is just as good science as it is poetry. It was the discovery of the great Newton that certain things are the exact opposite of what they seem to be, and we shall here extend that thought indefinitely. The Sun does not revolve around the Earth, nor is Vital Force either producible or destructible by any processes known to man. If producible, it is for the same reason destructible; if destructible it is producible. The argument stands thus: Vital Force in the bioplast, in the cell, and in the completed organism is transformed from physical and chemical forces, as Mr. Spencer claims and as Mr. Tyndall apparently denies, and returns to them at death; or it is "immediately produced" from the "Unconditioned Reality," as Mr. Spencer declares of Force in general, and returns at death to the same unconditional realm,—"to the God who gave it." It is Mr. Spencer who teaches that force returns to the condition from whence it came. If transformed from heat, it does or may return to heat; if a thought comes from electricity, it returns to electricity; the transformation-doctrine very properly teaches a return, at times, to its original shape. Mr. Spencer, therefore, testifies to the return of Life, at death, "to the God who gave it," provided only that He did give it. (§ 35.)

The opposing philosophies of our day all circle around that great doctrine which was intended to overthrow all existing doctrines,—viz., the Transformation of Forces, or, as otherwise expressed, the Correlation



## Vital Science

and Conservation of Energy, the truth or error of which, as far as it relates to Life, will be further considered in the next chapter. In the mean time, relying upon what has been already said, we postulate the great truth, that Vital Force is one of a great trinity of forces, under direction of a corresponding trinity of laws, constituting the all-sufficient basis of universal, created existence. All other forces are dependent upon and derive their significance from these primal forces; all other laws are empirical and subsidiary to the laws which control these primal forces; every motion, energy, phenomenon, every effect, fact, process, result, in the universe is traceable to one or other of Nature's fundamental departments, each clearly defined by its law, sustained by its proper force, Chemical Affinity, Gravitation, or Vital Force. Attraction of Cohesion and Capillary Attraction may not be clearly included in our scheme any more than in any other scheme (they are probably allotropic forms of Gravitation), but we have, we believe, made clear distinctions between Nature's forces and her motions, no matter whether these are physical, chemical, or vital.

99. These divisions of Force into primary and secondary is perfectly illustrative of a corresponding division of Law. Law and Force, we have seen, cannot be separated. As there are primal forces, so there are corresponding primal laws, each force having its own law; and as there are secondary forces, so there are secondary laws. And as it is everywhere admitted that force is "immediately produced" from an "Unconditioned Reality," so we have shown that all primal laws are the immediate decrees of the same Reality,

## The Cosmos ; or, The Constitution of Nature

the Great First Cause. Argyle's "Reign of Law" distinguishes between these laws as follows :

"And so the law of Gravitation is not merely an 'observed order' in which the heavenly bodies move, . . . it is . . . the force which compels these movements, and, in a sense, explains them. . . . The three laws of Kepler were simply an observed order of facts. . . . The higher law discovered by Newton revealed their connection and cause. . . . In the light of this great law, the three laws of Kepler were merged and lost." Just as we may suppose the motions are merged and lost in the results they produce, or, more properly, in the forces which produce them. (§ 12.)

Chemical Affinity is another primal law, as we shall show, though it does not seem to have been properly formulated, while Dalton's deductions are its secondary and working laws. In perfect correspondence with these we propose to formulate Life's Great Law not only, but four Laws of Vital Relation, empirical and secondary to the former, constituting Life's order of work. These secondary laws, just as the secondary forces, are incidental, but not primary to either material or vital existence. In all cases they are the product of the never-ceasing changes going on in Nature, while the primal laws or forces are the *causes* of these changes. Heat, light, electricity, etc., are the motions produced by Gravitation, Chemical Affinity, and Vital Force, just as Kepler's laws are the result of Gravitation, Dalton's the product of Chemical Affinity, or the Laws of Vital Relation are the deductions from Life's Great Law. Nature's secondary laws and forces are the incidental causes of things, the products of those which are primary, necessary, and ultimate.

100. The relations of these forces to each other is

## Vital Science

the next important subject, lying as they do at the very basis of any vital science not only, but of any consistent philosophy of existence. If we admit that active force is Motion, as the scientists certainly do, it follows that it is dependent upon the passive, intrinsic force which, present in all Nature, produces it. Professor Tyndall clearly shows that Motions or Energies are produced from such forces as Gravitation and Chemical Affinity, but he just as clearly proves that they are not transformed from them. What else can active force mean unless it is that force has become actively engaged in doing work? Force must have existed before it acted. It was passive before it could do work. Passive, it was engaged in maintaining things in *statu quo*, but having become active because of changed conditions, it is now producing changes in the relations of the substances in which it exists. And what better term to describe this form of force than Mr. Spencer's word, Motion. But because Motion is acknowledged to exist as "a mode of force," shall we treat it as force simply? When we observe force engaged in doing work, shall we conceive it to be a force from without, transformed from something else, or shall we properly conclude that the force inherent in the nature of the thing has become actively at work, making changes in the thing?

And now we may properly inquire, What is it that makes the passive force become active? Why should passive, intrinsic force, whose work it is to maintain things as they are, ever become engaged in changing things? Why not all things maintain the dead-level of an eternal stand-still? Or, if changes

## The Cosmos ; or, The Constitution of Nature

must be effected, why not carry them forward by forces especially provided for that purpose? Our answer is that a reasonable economy is illustrated in the Creator's work. Simplicity rather than complexity is the order of Nature. We have already shown that the very opposite results often follow the same causes in answer to opposing conditions. (§ 86.) Gravitation brings the rain down and carries the mists up (§ 39), floats the balloon or dashes it to the earth, causes the ship to sail (it is the real cause of wind) or sinks it, permits the man to swim or drowns him. (§ 74.) So Chemical Affinity makes dynamite and explodes it, makes the most deadly compounds, or the most inert agents out of the same elements, in answer to changed conditions. (§ 86.) And we shall conclusively show that all the varied activities within the vital organism, whether of health or disease, pleasure or pain, growth or decay, are due to the operations of one intrinsic, persistent force, called Vital Force, passively existent when not actively at work, and actively at work only because it was previously existent. The principle which explains all this may be expressed in a word, thus, *Changed conditions always involve changed activities and changed results.* As already hinted, at least two elements are necessary to any result, just as to any compound, which elements are *Force*, and the *condition* or *occasion* for the operation of the Force. (§ 72.) We repeat it as an invariable fact of existence, that in order to have something we must have something to start with. Something cannot come out of nothing. Change involves change, progress necessitates progress. Somewhere in the ages a something

## Vital Science

occurred which set in motion a machinery that can never cease as long as Force is persistent and Law unchangeable. With every change new combinations are effected; each new combination necessitating a corresponding action and reaction, so that Motion, once begun, can never 'cease until Time shall be no more. It is in these facts that we find the explanation of the innumerable motions, energies, activities, which grow out of the three primal forces of Nature.

101. Whenever, therefore, matter appears, it is only because it has Force stored within it, which Force, existing both as Gravitation and Chemical Affinity in all matter, and in addition, as Vital Force in the living world, maintains, because it has produced all material forms, and constitutes Nature's storehouse of Force, capable of being drawn upon for further work as *occasion requires*.

And the reader is requested to note the words, "as occasion requires." Force must exist before it works; it is passive before it can be active. As long as mere existence is the thing desired, Force exists in the Matter to preserve its constitution; but as soon as occasion requires, or conditions change, as in the application of heat to an egg, or a spark of fire to gunpowder, this same force passes from the passive to the active state. It becomes working instead of simply existing force. This seems to us the only rational explanation of the source of Energies or Motions. It is not good science to say that passive force must always remain passive, and that whenever we observe force in the active state we must conceive it to be an extraneous force transformed from something else.



## The Cosmos ; or, The Constitution of Nature

Where did that "something else" come from? Have we not conclusively shown that real, intrinsic force can never desert the matter in which it is inherent and cannot, therefore, ever become transformed into anything else? Force which is inherent, intrinsic, and passive frequently passes to the active state when occasion requires, as, for instance, the Gravitation stored in the water of a lake or river may be drawn upon to grind the flour or do other work whenever we supply the water-wheel and machinery at a lower level. The gravity is the power that does the work, and the water-wheel is the *occasion* or *condition* for doing it. While the water remained at the higher level the gravity was passive, but as soon as we opened the gate and allowed the water to run into the wheel, it became active. Just so Chemical Affinity makes heat, which, applied to water, produces an expansive energy called steam, which under certain conditions will do much work.

So, too, Force stored in dynamite or gunpowder is passive as Chemical Affinity, but as soon as we apply the proper heat the force becomes active,—explosive energy. So it is the force in the vegetable that enables it to grow, sunlight and heat being the occasion for the growth. In the same way it is the force in the horse that enables him to run, but it is the whip or command which occasions the running. It is the force in the man that makes him think, act, work, but it is his surroundings which *occasion* the thought and action. In other words, it is Environment or external agencies which *occasion* all activities, whether in the organic or inorganic realms, but it is

## Vital Science

the Force stored within the acting thing that *causes* the activities,—a cause being defined to be “that by the power of which a thing is.” But as we have already considered at some length the distinctions between *occasions* and *causes* (§§ 72, 73, 74), we need only remark here that Gravitation, Chemical Affinity, and Vital Force are the only natural primal causes in the universe for the production of effects; all other necessary things being either “modes of motion” produced from these causes, or *occasions* or *conditions* for the operation of the causes.

102. The above is evidently the conclusion reached by Professor Tyndall, who says, “The convertibility of natural forces consists solely in the transformation of dynamic into potential, and of potential into dynamic energy;” which means in simpler phrase, according to his own illustrations, the transformation of actual motion into possible motion, and of possible motion into actual motion, the force which produces the motion undergoing no change except change of position. For instance, the water which had rushed down the mountain-side and done work because of the gravity inherent in it, has lost none of its gravity,—there has been no transformation of forces,—but it has lost position. So the elements of the gunpowder which exploded, have lost none of their chemical affinities by the explosion,—there has been no transformation of forces,—but they too have lost *position*. So Vital Force is never transformed into, nor from anything else, because of work done, but it is daily losing position. But we cannot say the same of heat, light, or electricity. These are Motions, producible in

## The Cosmos ; or, The Constitution of Nature

Nature, and therefore destructible or transformable ; while the Forces are neither producible, destructible, nor transformable by any processes known to man.

And this is an important consideration : Whatever man can produce he can destroy ; whatever he can destroy may, under changed conditions, be produced.

103. But while forces cannot be produced in Nature, they often *reproduce* their positions. It is not the Sun's heat that overcomes gravity and gravity that overcomes the Sun's heat, as our scientists teach (§ 120), but it is gravity that reproduces the position it had lost, and is so enabled to do the same work over and over again, just as the same water is capable of being used over and over again. For example, after the water rushes down the flume into the water-wheel and so loses the elevation that would enable it to do further work, the Sun's heat, falling upon it, becomes absorbed as heat (not transformed into mechanical power), and so reduces the specific gravity of the water as to enable gravitation, pulling upon the whole atmosphere, to crowd the lighter vapor up until it appears as clouds, from whence, having been chilled by cold air, gravity draws it once more down to mountain and lake, to be again used in doing work through the water-wheel. (§ 39.) In all these processes there has been no transformation of forces, but there has been a decided change of position.

104. Undoubtedly the Sun is a great centre of force for our planetary system, but we demur to the theory that heat is that force. Heat is "a mode of motion," as everybody admits, and motions cannot produce forces, nor be transformed into them, as we shall

## Vital Science

presently see. All the wondrous effects usually ascribed to the Sun's heat as their cause are due to the Chemical Affinity, Gravitation, or Vital Force inherent in the things changed, the heat being simply and only the *occasion* or *condition* which calls into operation the force. (§ 101.) Heat is itself just as much an effect as is mist or cloud, storm or rain, and the cause which produces these, as well as rivulet, river, lake, and sea, is Gravitation or Chemical Affinity, as the case may be. So grass and herb, and fruit and flower, are the result of Vital Force, the heat being no more their cause than it is the cause of water, mist, or rain,—than it is the *cause* of the development of chick or bud, the flight of the balloon, or the sinking of the ship.

Heat is an energy or motion due to the operation of a force, and a necessary *condition* or *occasion* which enables Gravitation, first, To lift the mists into clouds; and second, To distribute these clouds over the land. Heat is a condition also for the combustion of fuel, which yields more heat, but it is Chemical Affinity that does the work. So it is the necessary condition for the growth and development of all living things, but it never has and never can produce a living thing. Only Life can produce Life; only Mind can produce Mind; only Force can produce Force; and each after its kind. The transformation doctrine is opposed to all the facts of Nature, if not of so-called Science. *As only the forces within Nature could have produced Nature, so the forces within each department are the cause and source of the work of that department.* Passive, intrinsic force, wherever found, is the source of all its motions, energies, and activities.

## The Cosmos ; or, The Constitution of Nature

105. Another important argument against the transformation and equivalence doctrine is the confessed ignorance and admitted confusion into which its advocates have been driven.

Professor Balfour Stewart, in discussing Forces and Energies ("International Scientific Series," Vol. VII.), prefaces his list of energies with the following :

"We must warn our readers that this enumeration has nothing absolute or complete about it, representing, as it does, not so much the present state of our knowledge as our want of knowledge, or rather profound ignorance, of the ultimate constitution of matter."

And Mr. Spencer says, with remarkable frankness,—

"To write a chapter for the purpose of showing that nothing is known, or can be known, of the subject which the title of the chapter indicates, will be thought strange. It is, however, in this case, needful." ("Principles of Psychology," § 58.)

Not at all strange for Mr. Spencer, for he has written many such chapters and made many such admissions.

106. A review of Nature's imponderable agents by reverse processes will emphasize and confirm these views, especially the distinction between the forces and the motions, or, as otherwise stated, between primary and secondary forces. Heat is perhaps the most obvious of Nature's imponderable agents, and we properly inquire if heat is a force or a motion,—is it primary or secondary, ultimate or proximate? The answer is that heat is being continually produced in the operations of Nature, which fact, of course, makes it to be a secondary imponderable agent,—a motion and not a primary force. And now we inquire as to



## Vital Science

what produces heat, in order, if possible, to discover the ultimate from which it comes. Observation shows that electricity produces heat, and we inquire if electricity is a produced or a primal agent? The answer is, electricity is also produced in various ways. Then it is not an ultimate or primal force. How is it with magnetism, light, radiant energy, etc.? They are all produced; none of them are ultimates; they are motions, and not primary forces.

107. And now we inquire, Does Nature supply any agencies which, while they produce varied motions and "modes of motion," are not producible by any of them? If we can discover such an agency which, while it produces, is not producible, we shall be justified in conceiving it to be a primary force. Such an agency we have in Gravitation, one of Nature's great original forces, from whose operations may be derived heat, light, electricity, and other forms of physical motion. And until it can be shown that Gravitation is producible in Nature, we are warranted in regarding it as one of Nature's primary forces. Chemical Affinity, we have already shown, is another of Nature's primal forces, in that it is absolutely necessary to the continued existence of material forms. Will reverse processes justify the conclusion? We believe they will, notwithstanding Mr. Spencer's attempt to show the contrary. With surprising thoughtlessness he reports the following: "In the magneto-electric machine we see a rotating magnet evolving electricity, and the electricity so evolved may immediately after exhibit itself as heat, light, or chemical affinity."

We dispute the assertion with regard to Chemical

## The Cosmos ; or, The Constitution of Nature

Affinity. Every chemical doctrine teaches that the affinity which causes the elements to change in form of combination resides in the elements whose combinations are changed, and, therefore, cannot reside in the thing which *occasions* the chemical operations,—resides in the changed substances and not in the magneto-electric machine. A perfect illustration of this subject is found in the combustion of coal. If we apply heat in a sufficient degree to a lump of coal the oxygen of the air will unite with the carbon of the coal to produce carbonic oxide and give off heat. But no one questions that the affinity which causes the combustion resides in the carbon and oxygen and not in the applied heat. And yet it is just as proper to say that heat was converted into chemical affinity to produce the combustion as to say that the electricity from the rotating magnet may “immediately appear as chemical affinity.” This is another instance of mistaking the *occasion* for the *cause*. Heat is the *occasion*, but chemical affinity is the *cause*. The *cause* of a bonfire is the affinity residing in the materials which burn, but the *occasion* is the match which the boy applies. In the same way a bolt of lightning often makes the oxygen and nitrogen of the air to unite chemically to form nitric acid, and a current of electricity through water will decompose the water into its elements, but no one can doubt that the real cause of the change in the compound is the affinity residing in the elements, the electricity constituting the *occasion* for the chemical action.

108. We will, of course, find no difficulty in discovering abundant examples of the production of energies

## Vital Science

or motions by forces. It is the contrary that can never occur. As well assert that a child can beget its own father as to seek to prove that heat, electricity, magnetism, or other motion can produce Gravitation, Chemical Affinity, or Vital Force. We might give numerous illustrations, but space forbids.

109. And now, if Chemical Affinity may not be transformed from something else or into something else, what shall we say of the pretended transformation of "modes of motion," such as heat, light, or electricity, into Vital Force? Can any one doubt the superiority of Vital Force to all other forces? Who will dispute that Mind—the mind of a Newton or Plato—is superior to the flame of a burning candle or a kerosene lamp? Mr. Spencer says the development of the chick is purely a question of heat; he would correspondingly lead us to infer that the development of a man is purely a question of bread and beer. This theory is simply Alchemy revamped. Instead of transmuting the baser metals into gold, it presumes to transform the baser forces into Life. It represents Science dancing attendance on Nature's "bargain counter,"—the cross-lots road to knowledge,—the "now you see it and now you don't" of modern research, and is, as we have seen, the product of confusion, not of order, of superstition, not of science.

## CHAPTER VII.

### VITAL FORCE: ITS NATURE AND SOURCE.

"Every fact of Life which we are able to investigate leads us to the conclusion that whatever Life may be, it cannot be ordinary energy, or any form or mode, or mood of ordinary energy of which physicists have as yet any cognizance or conception."—BEALE'S "Bioplasm."

III. NATURAL existence, it is universally agreed, is divided into two departments,—

#### THE INORGANIC AND THE ORGANIC.

It is equally agreed that between these there exists the most complete harmonies, which it is the business of philosophy to indicate and establish. Why not the same harmonies for the forces of these departments? The organic, we have seen, is not subsidiary to the inorganic. It is a department of the whole but not of the part. It is the last, best, and most important half of natural existence. Whence did it come? As all other departments have come, through the operation of its force. But whence the force? It were utterly incongruous, as we have seen, to derive organic force from a source different from that of other fundamental forces. If the organic world is a fundamental department of natural existence, its force must be correspondingly fundamental, or the division of Nature into inorganic and organic departments is an improper one.

## Vital Science

112. *All things the product of Force* is the great doctrine of the great thinkers. But, as already noted, Force exists in Nature in two states or conditions, called passive and active, also further distinguished as Force and Motion. It is further noted that the one class is persistent and indestructible, "the ultimate of ultimates" not producible in Nature, but derived from what Mr. Spencer calls "the Unconditioned Reality," while the other class is producible in Nature and its varied members are transformable into one another.

The great representative of the one class of force is Gravitation, while Heat, Light, Electricity, etc., which are well described as "modes of motion," represent the other class. The former must be admitted to be primary, fundamental, intrinsic, which can neither be destroyed nor produced in Nature, while the latter are readily producible, once we have the force from which to produce them, and just as easily destructible, when the force is withdrawn. "Lost motion" is an expressive phrase in common use, but "lost force" would be an absurdity. We daily produce Heat and Light through combustion, and Electricity from the dynamo, but we have not heard of the machine or the process that can grind out either Gravitation or Chemical Affinity. Employing these facts, especially those of production and non-production, whereby to distinguish between Force and Motion, we have been enabled to discover three great primary forces in Nature, corresponding to the three great primary laws already indicated,—viz., Gravitation, Chemical Affinity, and Vital Force. Only Vital Force can, we believe, be a further subject of dispute. Professor Tyndall agrees with us



## Vital Force: Its Nature and Source

in asserting that "Gravity and Chemical Affinity stand on precisely the same footing as regards convertibility into heat," or into anything else, for he has just been showing that the statement that "Gravity is distinguished from all other forces by the fact of its resisting conversion into other forms of force" is not true. And we have conclusively shown, we believe, that Chemical Affinity is a primal force, existing in all matter, as a necessary constituent of material existence, and equally resists conversion into, or from, any other force.

113. But the arguments for Vital Force as a primary agent of production may not as yet appear conclusive. Indeed, Vital Force, whence it comes and whither it goes, may be said to be the great subject of dispute in these later days of scientific investigation. That it readily returns to the source whence it came no one disputes. Mr. Herbert Spencer emphatically teaches this doctrine. And we are glad to be able to agree with him. To discover the source of Vital Force is to disclose its destiny; to disclose its destiny is to discover its source. If it comes from Heat, Light, etc., it, of course, returns to them, as Mr. Spencer teaches. If, on the contrary, it comes from the "Unconditioned Reality," as he admits of intrinsic force, it returns at death to the same Reality,—to the God who gave it. In accordance with Mr. Spencer's doctrines, however, Life, like Light, Electricity, etc., is simply a "mode of motion," produced from and transformable into other motions. (§§ 35, 41.) Generated, he says, by Heat and Light, it returns at death to the Heat and Light whence it came. But as we have fully controverted his posi-

## Vital Science

tions, and shown them to be utterly at variance with the facts, we shall here pass to a consideration of the same subject as presented by other eminent writers. Professor Joseph Le Conte, for instance, while agreeing substantially to the views of Herbert Spencer, but unable fully to endorse them, introduces into the discussion an important saving clause. He says ("International Scientific Series," Vol. VII.),—

114. "Vital is transformed physical and chemical forces; true, but the necessary and very peculiar condition of this transformation is the previous existence, then and there, of living matter."

This is Spencer's doctrine with a qualification. Unable to accept it in its bare nakedness, the Professor seeks through some artistic dressing to hide its deformities. He agrees, however, with us that *two* things are necessary to the production of Vital Force (as they are to any production):

First, Force, as the *Cause* of the product, and,  
Second, *Conditions* for the operation of the force.

The two elements described as necessary to the development of Vital Force are said by Professor Le Conte to be

Physical and Chemical forces, and  
Living Matter.

One of these is the *condition* for the operation of the other; the other is the *cause* or *force* that operates. Both of them contain force; the living matter contains Vital Force, while the physical and chemical forces are contained originally in inorganic matter. But the important question is, Which is the *cause* of the vital development, and which is the *condition*?

## Vital Force : Its Nature and Source

Le Conte teaches that living matter is the *condition*, and physical and chemical forces the *cause*. This is Spencer's doctrine of involution, an infolding or inwrapping. Spencer admits that Force is inherent in all matter, but he asserts that it is not the inherent force of living matter that does the work of the living organism, but rather a force from without. (§ 35.) Le Conte but repeats the error. According to his doctrines, external physical and chemical forces do the internal work, being transformed to Vital Force for that purpose, while the internal and intrinsic force is but a condition for their operation. But the function of force is to do work as well as to exist as a condition; what work does the internal force—the force of the living matter—do? If it may not do internal work then it must do the external work. And this is really the doctrine of these philosophers; internal force does the external work and external force does the internal work. (§§ 36, 40.)

115. Sir John Herschel, in his great work "Discourse on the Study of Natural Philosophy," § 145, has set forth some rules by which we may determine the real cause of any effect, and we think they apply here. He says,—

"Whenever two facts bear to each other the relation of cause and effect, there will be found to exist between them,—

First, Invariable connection;

Second, Invariable negation of effect with absence of cause;

Third, Increase or diminution of effect with increased or diminished intensity of cause."

Applying these rules to the subject of vital function, we inquire first, Is there invariable connection be-

## Vital Science

tween the physical and chemical forces and vital development? The answer is, There is no connection at all. "Which of you by taking thought can add one cubit to his stature?" no matter how much heat or light or food you may have.

Next we inquire, Is there invariable negation of function with absence of the physical and chemical forces of light, heat, food, etc.? The answer is that while these are necessary conditions for the development of the vital organism, this development bears no relation to the amount of physical and chemical forces. Life may exist for a time in their absence. Vegetables, and even animals, live in spite of the cold winter, and man can live for weeks without food as well as without heat and light. Seeds retain their vitality in the lowest temperatures.

But this brings us to the third rule. Increased or diminished intensity of effect with increased or diminished intensity of cause. According to Le Conte's theory the amount of Vital Force, and vigor of vital function, in a given case depends exactly upon the amount of physical and chemical forces that are ingested. In accordance with this theory the gourmand should outlive Methuselah and outrival Hercules in power. The hog should outlive the man, outrun the horse, and outweigh the elephant. Le Conte's theory may explain why physical and chemical forces do not originate life *de novo*, because "living matter" must always be present, but it does not explain why men die notwithstanding the superabundance of both physical and chemical forces and living matter. If Le Conte's theory be true, men, and many animals,

## Vital Force : Its Nature and Source

should never die. At least the King should be immortal, because he has in himself the previous existence then and there of living matter, and at his command all the physical and chemical forces of his realm. Why, then, should he die? He dies as all men die because he has exhausted his inheritance, not because he has no dinner to eat. He dies because his intrinsic Vital Force has lost its earthly position, having passed to another state of being, so that bodily energy, motion, or function is no longer possible, no matter how abundant the physical and chemical forces are, and notwithstanding "the previous existence then and there of living matter."

Now let us turn to the other alternative and inquire if there is invariable connection between living matter and vital function. The answer is, The connection is invariable. Living matter and vital function cannot be separated. Indeed, the evidence of vital function is the only way we know that matter is alive. When the function ceases life ceases, and can never be restored by any processes known to man. And now the second rule bids us inquire if there is invariable absence of function with absence of living matter. The answer is, The absence of one is invariable with the absence of the other. And last, Do we find an increase or diminution of vital function corresponding to an increase or diminution of living matter? It is impossible for us to cite a fact of observation to prove this, but the facts of inference are all on one side; the vigor of function corresponds to the vigor of the force.

We can say little further as to the application of



## Vital Science

these rules, for the reason that physical and chemical forces, as well as living matter, are always present in the same living organism, so that we are precluded from considering their absence or their intensity. But having already shown that physical and chemical forces cannot be transformed into anything, they cannot, of course, be transformed into Vital Force. Gravitation and Chemical Affinity cannot be transformed into any other forces, as we have seen, for the reason that they are necessary as Gravitation and Chemical Affinity to the very existence of Matter. Matter may undergo varied changes, being often built into vital structure, but it always carries its affinity and gravity with it,—a fact which proves conclusively that these forces are not transformed even if the material form is. (§ 95.)

116. But perhaps it is not intended to be claimed that Vital Force is transformed Gravitation or Chemical Affinity. Professor Le Conte confesses (§ 89) that he meant Energy when he used the word Force, and that it is the energies developed from the forces, as they fall to lower levels (§ 10), that are transformed to Vital Force. The prominent illustrations used by Spencer and Le Conte are Heat and Light, which are “transformable,” says Spencer, “into sensation, emotion, thought; these in their turn being directly or indirectly re-transformable into their original shapes.” (§ 35.) If this be true we should become very cold under excitement, thought, or emotion, and especially so after a good dinner. And as the dinner becomes more and more completely assimilated we should get colder and colder, and when we die, instead of getting

## Vital Force: Its Nature and Source

cold we should get very hot. For after dinner all the heat was being transformed into Vital Force; after death the Vital Force was returned to heat. Think of a robust, highly vitalized man being suddenly killed. If all his Vital Force returned to heat no crematory furnace would be necessary to destroy the dead body, its own heat would be entirely sufficient.

117. It is a remarkable fact that as long as man lives he maintains a temperature of about 98 degrees, no matter what the state of his Vital Force or the character of his food; but as soon as he dies he gets cold instead of hot, as he should do if the life returned to heat. Food yields to the organism *heat* and not Vital Force,—it yields physical vigor and bodily development but not the power of life.

That term “physical vigor,” which most people will agree is a proper one, as coming from food, is itself a good answer to the doctrine that food gives vital power. Food yields to a living organism physical force for the performance of physical work, but only when that force is controlled by Vital Force. For instance, no amount of food will enable a dead man to move, or an infant to do the work of the adult man, or a horse to reason. The food, in addition to yielding physical force, becomes, therefore, a *condition* or *occasion* for the operation of the inherent Vital Force, and, therefore, makes the work of the organism that eats it to correspond, not to the food eaten, but to the inherent force of the eater. We may give the same food to a man or a monkey, but the monkey will not do the work of the man. We may feed the same material to the horse and to the hog, but the hog will not

## Vital Science

perform the duties of the horse. It is the inherent life-force that does the work, the food being a condition for its operation and a servant to its master.

118. Still more important evidence that food, drink, medicine, or anything outside the living organism, cannot yield to it vital power, is the fact that nothing can take the place of rest and sleep. If food gives strength we may work on indefinitely and never become exhausted if we only eat enough. But no one is so lost to reason as to say that sleep is unnecessary, to animal life at least. What does sleep do? It stops the expenditure of the vital income. It thereby recuperates the Vital Force. It does what no food can do, it secures real strength to invalid or well man. No matter how much the physician may rely on his stimulants, he knows that sleep is a thousand-fold more important. One hour of sleep has turned the scales in many a case of sickness. Did the physician possess any agency that would take its place, he might act independently of it. Sleep shuts up the avenues of expenditure and the reservoir fills. Sleep is a closing down of the vital activities that real power may accumulate. When the philosophers can get along without

“Nature’s sweet restorer, balmy sleep,”

we may be compelled to acknowledge that Vital Force is transformed physical and chemical forces, but not till then.

119. But Light is at least transformed into the vitality of the vegetable. This is one of Professor Le Conte’s assertions, and he claims to show the fact by illustration of which he says,—

## Vital Force: Its Nature and Source

“It would seem in this case, therefore, that physical force (Light) is changed into nascent chemical force, and this nascent chemical force, under the peculiar conditions present, forms organic matter and reappears as Vital Force.”

Evidently the Professor is not very sure of the facts; he is sadly in the fog for the reason that he had just transposed *occasions* and *causes* in order to sustain the involution doctrine. Light has fallen on the plant, and organic matter and Vital Force have both appeared, and the only question is as to their Source. Did the Vital Force in the plant reproduce itself, Light and Heat being necessary conditions for that reproduction; or were the Light and Heat transformed into Vital Force, the Vital Force present being the necessary condition for the transformation? An excellent illustration of this same problem is found in the power of the leaven of yeast. A very small quantity of yeast in connection with Heat and moisture will “leaven the whole lump.” Is it the heat that makes the leaven, or the leaven that reproduces itself? So we inquire, Is it the Heat and Light that make the vitality of the plant, or does the vitality reproduce itself? Either the Reproduction or the Transformation theory is the true one, and the Professor’s illustration favors the former quite as much as the latter. He begs the question in citing an illustration that assumes the very point he is seeking to prove.

120. Professor Le Conte’s illustration of how this transformation is effected is the Spencerian fallacy already exposed of raising water into clouds. (§ 39.) He but repeats Spencer’s thought when he says,—

## Vital Science

“As sun-heat, falling upon water, disappears as heat, to reappear as mechanical power, raising the water into the clouds; so sunlight, falling upon green leaves, disappears as light, to reappear as Vital Force, lifting matter from the mineral into the vegetable kingdom.”

Every element of the statement is in direct opposition to the facts, so easy is it for men to believe what they want to believe. Sun-heat falling upon water does not disappear as heat; on the contrary, it is absorbed by the water as heat, remains in the vapor as heat, and it is only as heat that it can be of any service in raising water to the clouds. But it doesn't raise the water at all; it heats the water, and renders it lighter than the surrounding air, so that Gravitation, by pulling the air down, creates the conditions that cause the lighter vapor to ascend. Heat as heat expands the water into vapor, and thereby reduces its specific gravity, but Gravitation alone carries it up, and Gravitation alone brings it down, according as the heat is increased or diminished,—a fact utterly at variance with the transformation doctrine, but in full accord with the reproduction theory here advocated. “So sunlight falling upon green leaves disappears as light,” etc. The only trouble with the statement is that sunlight does not disappear as light, any more than the heat disappeared as heat. Green leaves reflect most of the light, and even if some is absorbed, we have conclusively shown that it cannot reappear as Vital Force. Heat is the *condition* which enables Gravitation to lift the water to the clouds, and light is the condition which enables Vital Force to carry on the process of nutrition; that is, to appropriate  $\text{CO}_2$  and give off  $\text{O}$ ; but in every case it is Life within the seed or plant



## Vital Force: Its Nature and Source

that does the work, heat and light being simply and only the conditions necessary for the operation of the inherent vital power. It was Vital Force that lifted the matter beneath it up to its own level, and not physical force that jumped up to that level. To make Vital Force, as this theory seeks to do, interchangeable with light, heat, electricity, etc., is to put the mind of a Newton in the same category with the flame of a burning candle, which is an impossible monstrosity of thought.

121. The whole philosophy of evolution circles around this point. It is a fact of every-day observation that matter, existing as chemical compounds, becomes organized into vegetables, and these vegetables by and by become transformed to animal structures, from which come forth magnificent powers and capacities, and the only dispute is, as to *the source of the power which accomplishes all this*. Scientists are continually telling us of the transformation of forces, but they never tell us what power it is that transforms them. Do they transform themselves, and if they do, how do they manage to creep up to such high levels as mind and thought? Can the less include the greater? If not, how shall it produce the greater? Is the universe the product of a Great First Cause or of a Little First Cause? If the *Great* is but a development of the *Small*; if dirt, by virtue of its own power, can become grass, and grass become fruit, and fruit become animal and man, then there is no reason why God Himself, as well as man, shall not be a development of mud and monkey. If, as Mr. Spencer asserts, the "incontrollable movements of the limbs" from

## Vital Science

tickling is nothing more than the transformation of the force employed in the tickling (§ 37), and that this principle everywhere obtains in Nature, who can measure the infinite smallness of the cause which first started the universe in its course of development? (§§ 56, 123.) Mr. Spencer unwittingly gives away his whole system when he acknowledges the necessity of a *Great First Cause*. (§ 123.)

That we may the more fully perceive how true all this is we shall quote from Professor Le Conte the following table, which shows that matter exists on four distinct planes, thus :

ANIMALS,  
VEGETABLES,  
CHEMICAL COMPOUNDS,  
ELEMENTS,

and that there is a constant elevation of this matter, one step at a time, into higher and higher states. The fact is indisputable ; the only question is as to the *cause* or *power* which accomplishes this. Do elements lift themselves into compounds, and compounds lift themselves into vegetables, and vegetables lift themselves into animals? Science, whether inductive or deductive, insists upon constant reference to the facts of observation. Do we observe matter on the lower plane lifting itself, that is, climbing or jumping up into the higher plane, or do we observe vegetables and animals, by virtue of their inherent vital forces, reaching down to earth and water, and lifting them up to their own structures? Is the power that accomplishes all

## Vital Force; Its Nature and Source

this internal and intrinsic, or is it extrinsic and transformed? Is the process evolution or involution?

At one extreme or the other we are entitled to look for the origin of things. Shall it be in the mud at the bottom of the sea, or in the blue and gold of the heavens? Is the power of development a drawing power or a climbing power? Shall we trace our genealogy to purple and fine linen, or to mud and monkey? Does mud have the power in itself to become amœba, and amœba to become fish and monkey, and monkey to become man? If so, the transformation of forces doctrine is proved, and the universe naturally traces its origin to an infinitely Little First Cause. (§ 56.) We teach a different doctrine. We assert it as an incontrovertible truth that the power of development is from above, a drawing power working through Heredity, "the first-born of every creature," and not a climbing power from beneath or without. (§§ 28, 51.) Chemical compounds have no power to grow vegetables; it is vegetable life-force that draws earth and air and water to the higher state, the chemical and physical forces in these compounds always remaining in them as chemical and physical forces, and therefore incapable of being transformed into Vital Force. Vegetables have no power to lift themselves into animal structures; it is animal vitality that reaches down to the vegetable world, and draws it up to its own plane of existence. And man is continually developing, educating, training animals, vegetables, all things below him. Does a horse train himself to speed, or a dog to intelligence, or an apple-tree to the finest fruit? And if the hand and mind of man should cease its

## Vital Science

work for the lower orders of existence, how soon would they return to waste and wildness? So good men elevate bad men; we have not observed the elevating influences of the "slums." So Christians send forth missionaries; we have not heard that savages teach and preach.

122. And now we inquire as to the power that is lifting man to higher altitudes. Is he tugging at the straps of his own boots? Are beauty of character, glorious thoughts, poetry, music, sculpture, love, hope, faith, the product of bread and beer? If bread and beer have made man, why should they not sustain and develop him? If they do sustain and develop him, why should they not have created him? It is passing strange that the processes of creation differ from those of preservation, and the processes of preservation from those of creation. The essential fact of life is the power of growth, which is, indeed, the real process of production or creation. Indeed, we may truly assert that creation is a process and not simply a product. Nature's processes are consistent; the power that first produced is the power that continues to produce; the power that made the organism is the power that operates its machinery. It is inconceivable that Nature's primal cause has either changed the order of His work or deserted His universe to its own devices.

123. Let us again inquire if this primal cause is a Great First Cause or a Little First Cause. Why call Him Great First Cause if it is not that He is the equal and sufficient cause of all that is, and of all that ever will be? This involves not only the accepted axiom

## Vital Force: Its Nature and Source

that "something cannot come out of nothing," but an equally certain truth that the great cannot come out of the small, the high quality out of the low. Every cause must be the efficient equal of its effect. (§ 55.) Motion is not and cannot be the product of inertia. Life is not the product of that which has no life. Mind cannot come out of no mind, that is out of matter. It is entirely reasonable that the great can produce the small,—can include the less. It is consonant with every fact of observation and every principle of common sense that Life can produce things without Life. But the converse will never hold,—things without Life cannot produce Life. And no amount of living matter that may be present in a given case can change this axiomatic truth. No person can give to another more than he himself possesses. Food and drink cannot produce thought, nor can fish make brains, because thought is superior to food and drink, and living brains superior to dead fish. Neither can brains secrete thought, as some teach, notwithstanding they are the *media* through which thought is expressed. We have no sympathy with the philosophy which juggles with *nothing* in order to produce *something*. Behind the thought is the power that produces thought; behind the brains is the power that made the brains. Whence this power? What name shall we give it? Can any one doubt that the term Vital Force is a legitimate term? And that Life, when considered as a principle of existence, is synonymous with it? And that it comes only from previous Life?

But whence came the first life? From Him who is Life, the Source of all Life not only, but of all other



## Vital Science

things. Even Agnostic Science is compelled to admit His existence; we do not see how it can dispute that the Great First Cause is a living cause. He is Life because He has produced Life; He is intelligence because He has produced intelligence; He is Wisdom because He has produced wisdom. (§ 60.)

124. And now as to the sustaining power of Life? If only Life can produce Life, how can anything less than Life sustain it? If the transformation of forces is a fallacy; if the less cannot produce the greater; if every cause must be the efficient equal of its effect; then it follows that nothing less than Life can sustain any more than originate Life. Sadly do men miss the truth when they seek for the sustaining power of Life and health in things beneath them. Bread and beer, hog and hominy, food and drink, may be the conditions for the operation of Life's forces, but their sustaining power must be acknowledged to be a fiction of the imagination.

125. Repudiating, therefore, with utmost earnestness the Transformation of Forces doctrine, we are called upon to replace it with a theory that will answer to the observed facts. The Reproduction doctrine is the only consistent and reasonable one. The process is evolution, the outworking of internal forces, and not involution, the inworking of external forces. As Life comes only from Life, so Vital Force comes only from Vital Force. It is undeniable that living things reproduce themselves, a fact which is accomplished by reproducing the cell which contains the primal element of all vital existence. The cell is made up of both Force and Matter, it is true, with the matter ultimately

## Vital Force ; Its Nature and Source

derived from the mineral kingdom. But it is impossible to agree that force is from the same source, because, as we have seen, First, Life cannot come out of no life; Second, High quality cannot come out of low quality; Third, Motion cannot come out of inertia; Fourth, The forces of the matter never desert the matter, and so can never be transformed into any other forces. If, therefore, animals reproduce themselves, and vegetables reproduce themselves, and all this is done through the reproduction of the cell, how shall we consistently deny that Vital Force, the primal and all-important element of all cells, all vegetables, and all animals, equally reproduces itself? If the whole is the product of reproduction, why not the part? If the effect is the product of reproduction, why not the immediate cause?

126. The inquiry now naturally presents itself, What is understood by reproduction? Are we to understand that one cell, one vegetable, or one animal, can, by virtue of power in itself, make itself into two, four, or a score? This would be something out of nothing, the exact parallel of the great out of the small. We have repudiated the doctrine, but we still adhere to the Reproduction theory. The cell does multiply itself, but whence the power of the multiplication? The principles of production as set forth in § 68 are applicable here. We there saw that at least three things are necessary to any production,—viz., wisdom, power, and the necessary materials. Air, water, and food supply the materials of organization, but, as repeatedly shown, they cannot supply either the power or the wisdom. These are from above, not

## Vital Science

from beneath. Vital power does double, treble, quadruple itself, and if not derived from the material which enters into the construction of the cell, whence does it come? The answer is, It comes, as does all real Force, from the invisible realm of power, or, as Mr. Spencer asserts of force in general, from an "Unconditioned Reality" by which it is "immediately produced."

Agnostic Science admits its inability to get along without reference to the invisible and so-called Unknowable Realm. In accordance with its theory, all intrinsic force is directly from this realm. But it denies that Vital Force is intrinsic. It teaches that Life and Mind are the product of things below,—that the noblest thought is derived from the meanest materials. We urge, on the contrary, that Vital Force is a primal, persistent, intrinsic force, inherent in the nature of living things, and is derived immediately from the Absolute Life and Mind,—the Great First Cause. (§ 57.) We equally urge that the Force that brings into existence a human being is the same force that develops his organism, maintains him in existence, sustains his powers, repairs all lesions, heals all ailments, and does whatever is done. The process is growth; and growth is a process of reproduction,—the reproduction of the cell.

The instinct of reproduction would seem to be one of the strongest instincts of living existence. Science shows that in many cases the individual must die by the very act of reproducing itself. Common observation shows that every mother puts her life in jeopardy by bringing into being a new life. And yet the process of reproduction still goes on.

## Vital Force: Its Nature and Source

Now, the reproduction of the individual is based upon the reproduction of the cell. Life first appears in the cell; it develops by reproducing the cell. The cell is itself an individual Life, having all the instincts of Life. But whence the power and instinct of reproduction? Not from Matter. The instinct of reproduction is an instinct of Life, just as the instinct of self-preservation is. Life comes only from previous Life; the Great First Life is the fountain of all Life.

126½. The essential feature of reproduction is Desire. To satisfy this Desire what won't highly vitalized cells, organs, or organisms do? Whence the answers to the desire? The Psalmist well says, "He satisfieth the desire of every living thing." The cell is a living thing. It gets its Life from the Source of Life; it draws power from the Source of all power. It reproduces itself; Like begets Like. Mr. Spencer's Unconditioned Reality is not a myth. Nor is it simply physical force. It is Life, Eternal Life, the Source of all Life and of all other things.

This is the only theory that is consistent with the teachings of the Christian Scriptures and with the facts of every man's experience. The great Teacher not only said, "Ask, and ye shall receive," but He equally said, "Every one that asketh, receiveth;" "every one that seeketh, findeth." Desire is seeking; desire is answered. Modern Science says, "Your strength depends upon how much you eat;" the old prophet says, "As thy days, so shall thy strength be." The Apostle says, "If any man lack wisdom, let him ask of God;" Modern Science says, Let him eat more

## Vital Science

fish. And when the strength comes with the day, poor, silly invalids imagine that the Doctor's drug gave it. Old King Alcohol has long appropriated to himself Divine honors; has long held in abject slavery his millions. Idolatry is not confined to the jungles of India or the wilds of Africa. Even to-day comes the picture of the Red Cross nurse in the attitude of Faith, looking up with loving confidence to a fraudulent patent medicine. How can the victims of such delusions still believe in the Sermon on the Mount? It is passing comprehension that men can with comfort read Spencer's Biology on the one hand and the Great Book on the other. They are not, cannot both be true. It was King Asa who, when he had the gout, "sought not to the Lord, but to the physicians. And Asa slept with his fathers." To make Life subordinate to matter, as not only does Mr. Spencer, but most patients and doctors, is to exalt dirt to the Throne of Pre-eminence. To make the organic world subsidiary to, or a department of, the inorganic is an inexcusable incongruity. If Force, passive, independent, and "immediately produced" "by the Unconditioned Reality," is necessary to the production and preservation of material existence, as Mr. Spencer agrees, it were absurd to conceive that a less important force were sufficient for the production, preservation, and repair of living things. Why not the same principles apply to the second and more important half of existence that apply to the first half? They do. But passive, intrinsic force is so intangible and invisible that we are unconscious of its existence until it becomes actively at work, and



## Vital Force: Its Nature and Source

then, because it has been called forth by certain external appliances, we are misled by appearances, and erroneously conclude that the appliance gave the force, when, in reality, it only called it forth. As well conceive that a match applied to gunpowder supplied the force of the explosion, as that a dose of whiskey or any other substance supplies the force which the man consequently exhibits. (§ 74.) It was the force stored in the gunpowder that caused the explosion, the match being simply the *occasion* for its activity; so it is the force stored in the living matter carrying forward the functions of the organism that constitutes the strength of the invalid, the physical and chemical forces of the stimulant or tonic, or even food, being the *occasion* or *condition* for calling it forth.

The force that made the living organism is always in the organism, to preserve and perfect it, just as the forces that made the universe are always in the universe to preserve and perfect it. And when, under changed conditions, work is inaugurated, the force that does the work is the power within, inherent in all living things, appearing in the active or working state. If the universe could not be created by external agency, as Mr. Spencer shows, how could the living part of it be thus created? (§ 49.) And if it cannot be created by external agency, how can it be organized, sustained, repaired by external agency, and the processes of Nature be conceived to be consistent? The universal truth is, that Causes are always within and Occasions or Conditions without, and the importance of maintaining the distinction must be at length evident to every reader.

## Vital Science

As, therefore, Life is a reproduction and not a transformation, so the Life-forces are received as a momentary income from the Unconditional Realm, and not from food, drink, or medicine. We draw upon this Unconditioned Realm of Power, as we have seen, through Desire. The cell desires power for its own reproduction, and it gets it. It is inconsistent even to absurdity to teach that each new-born babe is so much Life abstracted from parents. It is equally proved that its life is not and cannot be derived from that which had no life to give. The only other source of its power is the Omnipresent Life who "giveth liberally to all men and upbraideth not."

To what extent may we draw upon this Realm of Power is the next question. The answer is, to every individual according to his capacity. The Source of Life is boundless; we cannot exhaust it. But our capacities are limited; we cannot exceed them. Some teach that the limits of our drafts should be the limits of the Fountain, which is absurd. We need not hope to become omnipotent. We are limited by the terms of our inheritance.

But what is the *measure* of any individual capacity? Is it not the conceived plan? Consider the lilies how they grow! But they are only lilies. No desire, no prayer, no ambition, can make them a Solomon. Every man is born into this world with a definite capacity for life and health which he cannot exceed. But he is entitled to the enjoyment of the full measure of this capacity. It is his inheritance; his right. He cannot outlive the conceived plan; but he has no business to be sick. We doubt if sickness is *ever*

## Vital Force: Its Nature and Source

a constitutional inheritance. The reproducing and, therefore, the healing process is always going forward, and healing will surely be effected if the patient will "cease to do evil and learn to do well." Health is the normal condition, and will always prevail, as certainly as water runs down-hill, provided the obstructions to its normal operation are removed.

127. But varied objections are raised to this theory. Men try everything and fail to get well. Let them stop trying for a while, and they will get better results. "Not try but trust" is often as important to health as to religion. What most people want is more rest and less worry. "Drowning men catch at straws," but it is the catching at the straw that drowns them. The drowning of people is almost invariably due to their struggles to save themselves. If they would lie quietly on the water, with nose elevated, they could float and breathe for hours; instead of which they plunge and roll and struggle, until, exhausted, they give up the contest and sink to rise no more. In the matter of health in our day, it were folly to be wise. Nearly all thought, all doctrine, and all practice is opposed to good health. About all theories of disease are exactly wrong. Men's confidence in medicines is even more disastrous. To poison a patient because he is sick, they tell us, is Science. In the place of all the charlatanry, superstition, and ignorance, is it wonderful that men are sick? It is more wonderful that any one is alive.

But the one important fact to be urged against our theory is the fact of Death. To urge that the Life-forces are persistent, indestructible, eternal, because derived from an Eternal Source, will not avail in the

## Vital Science

face of the sad facts. Apparently one of the most easily destructible things is Life. It comes and goes in such silent, mysterious ways that no man may understand. It first appears in vegetable protoplasm, and just as readily disappears from that protoplasm. What became of its Vital Force? We have conclusively shown that it did not come from heat, light, chemical affinity, etc., and does not return to them. We agree with Mr. Spencer that it returns to the source whence it came. "The soul returns to the God who gave it."

Has the vegetable gained anything by its excursion into the realm of earthly activity? Its Life is indestructible, but in returning to the Source of all Life has it gained position? Has it become individualized, hereafter to enjoy individual existence? Whatever may be said of Life in its lower manifestations, we think no one can doubt that in its human form it never loses its individuality by being returned to the Source whence it came.

128. The immortality of Life is proved in the same way as the indestructibility of matter. But there are two possible conceptions of immortality; the one is that Life, in disappearing from Earth, is absorbed again into universal being, having lost individual existence, and the other is that it returns as an individual, to live on and on, in conscious power. Both we believe to be true. Vegetable life, cell-life, organic life, is as truly immortal as is human life, but not in the same way. The human being surely becomes individualized once for all, and having learned much from earthly experience, he returns to God from whence he came,

## Vital Force: Its Nature and Source

to carry with him through all the future whatever he may have gained. It is not to be presumed that his opportunities for gain will ever cease, but all men necessarily carry with them the products of the past.

While, therefore, Life is perfectly analogous with Gravitation and Chemical Affinity as to its Source, it differs from them in its higher forms, at least in that it is subject to another law,—the law of self-preservation, which might also be called the law of progress. Conscious living existence gains by experience as inorganic existence never can, and so having started on a career of activity, the end is not yet. But while Life, like Gravitation and Chemical Affinity, is indestructible and so immortal, and can never lose its identity, it may, and constantly does, lose position, just as does the sister forces. For illustration: A million gallons of water stored in a basin on a mountain-side represents a definite capacity for work according as the conditions are supplied, but when it has done the work, while there has been no loss of Gravity there has been a decided loss of position,—the water is now in the valley, incapable of repeating the work. So when chemical force, stored in gunpowder, is exploded, the force is not lost, but it has lost its position. Just so when a man dies, he has not lost his life, but he has lost his position in this world. He has gone forward to another state, just as the water rushed down the mountain-side or the gunpowder was exploded. But as the water possesses the same gravity below the hill that it did above, and as the elements of the gunpowder possess the same Chemical Affinity after the explosion that they did before it, so life possesses the



## Vital Science

same vital qualities after death, but it occupies a different and a less or more advantageous position, as the case may be.

129. What is true of death is true of the daily decay of which we are subjects all the way along our earthly existence. We are not losing Life, but we are daily losing position. No man can return to the youth that he has left behind, any more than he can return to earthly existence once he has departed. The food we eat, the fluid we drink, the work we do, the medicine we swallow, all things are hastening us to new positions, new states, of which death is the consummation. The rapidity with which we reach this consummation, accidents and violence which destroy the machinery of Life being excepted, is measured by the vigor of the expenditure. And this is described by the work done. All work, whether of muscle or nerve, brain or body, stomach or lungs, liver or heart, no matter what is done, represents just so much power expended in doing it. Every stimulant, tonic, excitement, all food as well as all work, calls up and expends the vital resources. Most men have the choice of a short life and a merry one, or a long life and a prudent one. Too many choose to burn the candle at both ends and make business for doctor, minister, and undertaker.

Earthly life, therefore, consists in developing and expending an inheritance which is not lost in the expenditure, but only transformed to the new state. "The soul returns to God who gave it."

## CHAPTER VIII.

### THE EGO ; OR, THE CONSTITUTION OF MAN.

“Every one truth is connected with every other truth in this great universe of God.”—ARGYLE’S “Reign of Law.”

130. THE reader will recall that in the beginning we postulated the truth, about which there can be no dispute, that Nature is made up of Forces, Laws, and Phenomena. (§ 6.) Phenomena, composed of both Motion and Matter, are the things produced, manifested, observed, and this evidently involves not only a power of production, but an agency to direct that power. Power without a directing intelligence or wisdom would be valueless. Intelligence without force to sustain it would be equally so. And without these there could be no production, no phenomena, no universe. Indeed, it may be truly asserted that power itself involves the idea of direction, and this directing principle is known in Science as Law. (§ 11.) Force, Motion under control of Law, and Matter are, therefore, the constituent elements of material existence. (§ 68.)

And now is it possible to conceive of any portion of the universe that fails to illustrate this form of constitution? If the universe at large is made up of

FORCE,

LAW, AND

THE THINGS WHICH MANIFEST THEM (Motion and Matter, called also phenomena),

## Vital Science

is it possible that some portion of the universe illustrates other principles? It is not possible. Man is a very important part of the universe, and illustrates in his constitution the principles of universal production. Force performs, Law directs, and Matter responds. To clearly perceive and consistently maintain the true distinctions between these is one of the first steps towards the establishment of science.

131. From these considerations it is evident that Force is inherent in the nature of things. (§ 91.) Mr. Herbert Spencer is authority for the statement that Force is an "ultimate of ultimates," a necessary prerequisite to existence in any form. Matter without Force is an impossibility. It is indestructible because force is indestructible,—because force is persistent. The force which Mr. Spencer employs to illustrate the indestructibility of Matter is Gravitation, which is never absent from matter. (§ 95.) We have conclusively shown, we believe, that Chemical Affinity is equally inherent and always present in Matter. (§§ 91, 107.) Each of these forces operates according to its own definite law, and consequently produces its own well-defined phenomena.

We have before us another realm of activity in which phenomena of another and more important character are produced. These phenomena are not, and confessedly cannot be, the product of either Chemical Affinity or Gravitation. (§§ 115, 116.) If these laws and forces are distinct from each other, as proved by the results, why shall not phenomena that are widely different from those of either be equally considered as due to another force under direction and

## The Ego; or, The Constitution of Man

control of another law? It were absurd to conceive that vital phenomena are the product of any other force than Vital Force. It were equally absurd to conceive that vital phenomena are the product of some vague, indefinite processes which no man may comprehend. Living existence is unquestionably a part of Nature; why not its operations subject to natural principles? It is the larger and more important half of natural existence, why not its phenomena the product of forces under control of laws, as are all other phenomena? Only "overwhelming bias," to use Mr. Spencer's phrase, can assert that physical forces can produce vital phenomena. There is but one reasonable conclusion. Life has its own force, which operates according to its own law. (§ 96.) Such a force is necessarily *inherent* in all living forms, just as Gravitation and Chemical Affinity are inherent in all material forms. This truth is further proved by the fact that living things cannot be produced except through Heredity. Heredity provides inheritance, and inheritance is that which inheres.

132. Now an inherent force is a primal force,—a force "immediately," not mediately, "produced" from the Source of Being, which is properly called "The Unconditioned Reality." Vital Force, therefore, traces directly to the Source of Life. It is, and cannot be, as we have clearly seen, the product of inferior forces. As Gravitation never produces Chemical Affinity, nor *vice versa*, so they never produce Vital Force. And as Heat, Light, Electricity, etc., which are secondary forces, or more properly "modes of motion," cannot produce either Gravitation or Chemical

## Vital Science

Affinity, so they cannot produce Vital Force, as we have also shown. (§ 108.)

Nor can Vital Force be the product of forces which operate according to other laws than the laws of vital phenomena. Being the highest order of phenomena known, it is impossible that the forces of the lower orders can produce them. It is established, and, we believe, everywhere admitted, that the *effect* cannot exceed its *cause*. If Vital Force produces phenomena the superior of all other forces (§ 123), then it must be a superior force, and if a superior force, how could it be transformed from or produced by an inferior one? As a fact of common observation, verified and demonstrated by the most carefully conducted experiments, Life comes only from Life, a fact which necessitates that its ultimate source is Infinite Life, in order that it may answer as *cause* to the requirements of all past and present life not only, but to all life that an eternal future may exhibit. Vital existence is, therefore, made up of phenomena, forces, and laws, all of which are separate and distinct from each other not only, but as separate from physical existence as are the phenomena observed.

133. Let us now recall a truth which is universally applicable in Nature,—viz., that Force of whatever name or nature is invisible and intangible, known only by its effects. Stated in other words, *all causes are invisible*. (§§ 54, 93.) Life is an invisible potency; not an observed reality. The real life is the Ego, a power and intelligence which remain hidden within the observed organism as the source and cause of its operations. It is neither function, process, nor product, but



## The Ego ; or, The Constitution of Man

the *cause* of all of them. As material existence was and is the product of Chemical Affinity, which made and makes water, earth, and rock ; as Gravitation now, as always, gathers the water together in river, lake, and sea, causing the “dry land” to appear ; so Vital Force produces, reproduces, and sustains all living things.

134. And now, is it conceivable that living existence is apart and separate from that which is preparatory to it ? It is distinct, but not separate. It is superior, but not absolute. Gravitation and Chemical Affinity, it is admitted, exist in external nature preparatory to vital existence ; can there be any doubt that *they exist in the vital organism subordinate to Vital Force* ? It were a wasteful procedure, not at all consonant with creative plans, to neglect or abandon foundation principles while building up superstructure. As a matter of observation, a large proportion of the functions of a living organism is the product of mechanical and chemical processes, as witness the mechanics of chewing and swallowing food, and the chemistry of insalivation and digestion. So, too, hydraulics, combustion, and steam are illustrated in circulation and nutrition. The lever and pulley have their uses in voluntary motion, while in the operations of the nervous system we have the most perfect system of telegraphy. The forces which carry on these processes may, out of courtesy, be called vital forces, but no one can fail to note that they are really chemical, mechanical, and electrical. But they are evidently under control of a superintending power. Vital Force is a superintending force. The physical forces are its servants. What a

## Vital Science

magnificent optical instrument is the eye! but how much could it see if it were dead,—that is, if there were no vital force to superintend its operations? How much can the dead hear, no matter how perfect the machinery of hearing? Neither can the dead man feel, move, or think. How wonderfully this superintending force controls the heat of the body, no matter whether we appropriate little or much combustible material! It is chiefly chemistry that makes the heat of the organism, but it is vitality that controls it. It is optical mechanics that enables us to see, but the Ego must control the mechanism. It is pulley and lever that enable us to walk, but Vital Force alone operates the pulley and lever. The stomach digests all kinds of meat, but it doesn't digest itself. Nor can it digest the living reptile that has found its way therein. Why? Because vitality is superior to chemistry, and no gastric juice can digest a highly organized living thing.

The living organism, therefore, illustrates in its operations all the principles of Nature beneath it. But this is no proof that they are transformed into Vital Force. But what proof, we may be asked, is there that there is any force in the living organism but physical and chemical forces? The answer is, The proof of function,—the only evidence we have of any force. How can we know that Gravitation or Chemical Affinity exists but by the work it performs? The force which gives weight to matter is gravity. No one thinks of giving it another name. Chemical Affinity disintegrates matter and combines it into other forms. No one dare credit chemical operations to some other

## The Ego ; or, The Constitution of Man

force. When, therefore, a series of functions distinct from and largely in opposition to the work of the other forces is performed, as when we climb the mountain-side or swim instead of sink, in opposition to gravity, why not call the force which does it Vital Force? Only "overwhelming bias" can account for the effort of some to get rid of the most important force in Nature. The proofs are overwhelming, also, that Chemical Affinity, Gravitation, and Vital Force exist side by side in every living organism, and so cannot be transformed into each other. Chemical Affinity under control of Vital Force works constructively; but as soon as the Vital Force departs, the same Chemical Affinity destroys what it previously aided in building up. Vital Force being the highest order of force known, employs in its service all agencies beneath it; but it neither falls to the level of its servants nor lifts them to its own level.

It has truly been said of Man, "All things are yours." But all things are not us. All things, men included, are God's; but all things are not God. Life, being subjective, not objective, is the possessor, not the possessed. Mind is the king, not the subject; the master, not the servant. The Ego is behind, above, and over all, with the body as a tabernacle in which to dwell and a machinery through which to work. The work which the man performs is physical as well as vital, and while physical forces may do physical work, only Vital Force can do vital work. Construction and repair are purely vital processes, as are thought, feeling, and will, while breathing, circulation, even digestion, are physical processes under control of the

## Vital Science

vital instincts. In the living organism spirit and body meet in a round of function which may well be called the soul-life. To carry on its functions there must be both vital and physical forces,—the former to control and the latter to serve. The human trinity of body, soul, and spirit is not, therefore, a fiction of the imagination.

135. While, therefore, physical and chemical forces are necessary agents in the functions of life, they are never transformed into any other force. Being inherent in the constitution of matter, they always remain the same forces. Being inferior to Vital Force, they cannot be made into Vital Force without transgressing one of the most obvious laws of Science. Inherent Vitality is the real Ego; is Mind not Matter? It is power illustrating a wisdom that seizes upon and employs for its purposes all things that may be of service to it. It is the healing as well as the producing power. The only power that can heal is the power that repairs; the only power that can repair is the power that produces; the power that now produces, repairs, heals, is the same which originally produced. The machinery of a human organism is too delicate and complex to admit of repair by any one but its producer. Even a piece of human invention is best repaired by its manufacturer. In every living organism the process of repair is the process of reproduction, the same which brought it into existence; while the *power* of repair is the power of life which performs all its functions.

136. Whence this power? In accordance with the doctrines here urged, every living organism is a reservoir of power,—of physical power for the doing of

## The Ego ; or, The Constitution of Man

physical work, and inherent vital power for the production, control, and repair of the vital machinery. The physical power is that which is derived from food, drink, air, etc., as this is controlled by the inherent force, while the vital power is well described under the term Inherent Vital Capacity. More than thirty years ago our studies and observations compelled us to divide the so-called vital forces into two classes, denominated by us

### INHERENT VITAL CAPACITY AND AVAILABLE VITAL POWER.

137. This classification was induced by the frequent discussions in which we engaged as to whether vitality once lost could ever be regained. We readily saw that what could be produced could be regained. Available vital power is always more or less under the control of the individual. It fluctuates from day to day, from hour to hour. Now it is nearly exhausted, and again it is abundant. The feebleness of infancy is being continually lost in the vigor of manhood, which again often falls to the incompetence of convalescence, and again returns to health and vigor. Being largely supplied from without, its quality and degree is at least partially determined by Environment. We lose it in work ; we gain it in sleep, but especially is it supplied to us by food, drink, air, etc., provided always that the inherent capacities warrant the use of the food, air, etc. Of themselves food and air can yield no power, but whenever the capacity for their use exists, the inherent powers may appropriate and use them to the production of power available to the needs of physical func-



## Vital Science

tion. But such power, called by courtesy vital power, being producible, is not, therefore, inherent, and is consequently not healing power. As it could not produce the living organism in the beginning, so it cannot reproduce and repair it. It is not vigor or energy that saves life, but intrinsic, inherent force, which the infant often has more abundantly than the robust man. All experience shows that the athlete stands no better chance for long life than does the delicate student. Indeed, as a rule, the student long outlives gymnast, athlete, or pugilist. As only Life can produce Life, so only Life can reproduce and repair the living organism. The baser forces can no more be transformed into Vital Force than the baser metals can be transmuted into gold. If they could, the length of a man's life would be chiefly in his own keeping.

Available Vital Power is, therefore, a fluctuating power, rising and falling in degree corresponding to the quality and character of the man's labors and surroundings. But Inherent Vital Capacity is another subject. Once lost it can never be regained. But it cannot be really lost. It may lose position, but it can never lose identity. (§ 98.) Day by day we are losing yet gaining. Hour by hour we are moved onward by irresistible forces to the grand consummation.

“Do we move ourselves or are we moved by a hand unseen,  
That pushes us off the board and ever others succeed?”

138. Inherent Vital Capacity is but another name for Inherent Vital Force. For how can there be capacity without force to sustain it? If an individual is born into this world with a capacity to live seventy years,

## The Ego ; or, The Constitution of Man

he is necessarily endowed with the capacity to appropriate the forces to sustain these years.

For we do not inherit all our forces in a lump. The wise parent has secured to us the power to draw on our inheritance as a daily income. "As thy days, so shall thy strength be" is Science as well as Scripture. Men and women are anxious for the morrow, forgetting that the morrow will care for the things of itself. "Which of you by taking thought can add one cubit unto his stature?" Which of you by taking thought can add one iota to his vital capacities? "And why take ye thought for raiment?" The medical doctrines of our day are diametrically opposed to the Sermon on the Mount. The one teaches that "the Life is *more* than the meat and the body than the raiment;" the other asserts that Life and the life-forces depend upon what we eat and drink. We believe in the Sermon. Food, drink, and raiment, being inferior to Life, can never produce Life, Modern Science to the contrary notwithstanding. If they could, why is not this home of plenty—this "land that flows with milk and honey"—the home of a race of physical giants?

But the truth is that Inheritance, not Environment, determines this question. It is vital capacity, not vital energy, that limits the size and power of a man. Just what the inheritance may be in a given case no one knows beforehand. We know only that Like begets Like. Yet the capacity wrapped up in an infant is a subject of speculation, not of exact knowledge. Nevertheless experience has guided us to a limited understanding of the subject. The Life Insurance Com-

## Vital Science

panies never base their expectations of life on what or how much a man eats. They never make the inquiry. But they are always interested to know the age of parents and grandparents, even to the third and fourth generation. With a good parental inheritance they are even willing to overlook minor defects. "Blood will tell." It is Heredity that determines character, longevity, and all other things, a truth which confirms the doctrine of the ages, "Ye must be born again." New birth, new character; old birth, old character. To be well bred is of greater consequence than to be well fed.

139. In saying this we would not be understood as decrying the importance of Environment. Rather would we assert that human character, like human life, is the product of Heredity, called into action by Environment. Heredity supplies the *power*, but Environment supplies the *occasion* or *condition* for the operation of the power. Man is a composite creature, having relations to Earth as well as Heaven. He is dependent upon a *conditioned existence* as well as upon an *Unconditioned Reality*. From the former he gets all the materials of which his organism is composed, while from the latter comes the power to organize these materials. They cannot organize themselves, as we have seen. (§ 68, 70.) They include certain inherent forces, through whose operations a variety of physical energies are developed; but these energies are not vital, and cannot do vital work. They are physical for the performance of the physical functions of the organism. Vital or healing force,—the force that organized and controls,—on the contrary, comes

## The Ego ; or, The Constitution of Man

directly from the Unconditioned Reality, as is admitted of all primal forces.

Man is a compound of these forces. And the proportions of the combination are the real measure of the man. They determine the certainty of his health, and the length of his life upon the Earth, more truly than do any other influences. With abundance of inherent vital power he is best protected against disease, accident, misfortune, in any respect. But wherever the physical forces, no matter how abundant, are not well controlled,—whenever they overbalance the inherent powers, the man's life is in danger. This is the reason why a fast life means a short life. This is the reason why temperance, sobriety, and virtue mean length of days. More than once we have felt it a duty to warn friends of the dangers into which they were being pressed by what is called good living. In one case, a business friend, about forty years of age, was growing stout and fat, and to many gave the appearance of robust health. He weighed over two hundred pounds, though he was neither a drinker of beer nor of stronger liquors. On Saturday afternoon, though still actively engaged in his work, we warned him that he was going the wrong way, and ought to turn over a new leaf. He confessed that he wasn't feeling good. On Monday morning, thirty-six hours afterwards, the telephone brought the message of his death. His life had gone out as a candle is blown out. The little man, made up of skin and bone, and nerve and muscle, took his place, and bids fair to see his four-score years. He may not be very strong, but his inherent power is abundantly sufficient to control all the

## Vital Science

physical energies that he is likely to possess, and even if disease should overtake him, it will be easily controlled and he will recover. Every pound of material forced upon a man beyond his normal capacities to use and appropriate it, no matter whether forced upon him through the use of beer or whiskey, whether through malted milk or malted rye, or only by what is called good living, is a magazine of gunpowder, or other combustible material, awaiting favorable conditions for an explosion or conflagration. This is why La Grippe is making such a successful tour of our country. What is needed for prevention and cure of this, and most other diseases, is recuperation of the inherent forces through a reduction of the physical energies,—more rest and sleep with less food and drink.

140. This classification of the vital resources into Inherent Vital Capacity and Available Vital Power is perfectly analogous with the classifications of Force which are recognized in the material world. Mr. Spencer says, "There are two kinds of force, passive and active." These he also denominates Force and Energy; also Force and Motion. The former having "no specific name," he shows is *intrinsic*, while the latter is *extrinsic*. The former, he admits, is "immediately" produced by the "Unconditioned Reality," and is therefore inherent, while the latter he improperly claims is produced in Nature from "*pre-existing external forces*." We have controverted this position, and shown that active force is a development from passive force, and that he is right when he calls it energy or motion. Vital energies are the product of Vital



## The Ego; or, The Constitution of Man

Force as this is called forth by *occasions* or *conditions* to receive and control the physical and chemical forces of food, etc. Increase of vital energy involves increased expenditure of Vital Force. Physical and chemical forces cannot do vital work; they may aid the Vital Force, but they always induce further expenditures of Vital Force. The proof of this is in the fact that no amount of food, drink, air, stimulant, or tonic can take the place of sleep. Sleep and rest reduce expenditure; all other agencies increase it. Excessive labor represents great energy, but it exhausts the force. Sleep and rest reduce the energies but save the force. The more energy the less force, therefore, as in exhaustive labor. Per contra, the less energy the more force, as in sleep and rest.

141. In this connection we have the elements of the greatest delusion the world has ever seen. It is an almost universal conception that strength, vigor, energy, is identical with Vital Force, and that any increase of the one means a corresponding increase of the other. For this reason patients seek, and physicians administer, agencies which increase the vital energies, all the while ignorant of the fact that they are reducing the vital forces and destroying the patient's life. Every stimulant, tonic, nervine, no matter of what name or nature, is a draft upon the vital constitution, and a source of exhaustion to the vital forces. Food is no exception to drink or medicine, except that whenever the organism is in a condition to use it, it supplies material for building up the organism and physical forces for the performance of physical functions. But the food calls forth and ex-

## Vital Science

pende inherent vital power just as any other objective agency does. Even Life itself is a coming forth from the invisible realm of a vital inheritance, which by coming forth is transferred from one state of existence to another. Work and worry, food and drink, stimulant and tonic, whatever increases vital activity, hastens the consummation. Whether we are considered mariners on Life's ocean, or laborers in the fields of destiny, the more rapid the pace the quicker we reach the end. Death is the consummation of earthly life. Sleep and rest stay the progress; all other things, even food, hasten the end. Work done represents the power that has done it; whether performed easily or laboriously it involves the transfer of the power from the worker to the work.

142. Another element of delusion which destroys its millions is the fact that the only power that man is conscious of possessing is the power that he is losing,—the power that is going from him into the work he is doing. Passive, intrinsic force, Mr. Spencer well shows, is an unknowable quantity. It is only as it becomes actively engaged in doing work that we are able to measure it. The gymnast is no more conscious of his strength until he uses it than is the babe. Nor does either possess half the consciousness of power that the man "half seas over" does. The gymnast proves his strength by a trial of it, but in making the trial he parts with a consequent measure of power. The inebriated man feels strong, rich, and unconquerable because his power is going rapidly from him. It is said of people whose life had nearly gone out from drowning that the intensity of mental effort, and

## The Ego ; or, The Constitution of Man

the evidence of mental capacity, were wonderfully increased. We are conscious of power in action, but wholly unconscious of that which is passive. But the passive power is real and intrinsic, while the active force is force passing out of one condition into another.

The power in dynamite is passive ; how innocent is that little gray stick ! While the passive condition remains the dynamite remains indefinitely, but once call the passive force into action and the innocent-looking stick is destroyed in the doing of its work. So man is utterly unconscious of the force stored passively within. It is only when expenditure occurs that he is conscious of the power he expends, so that the more rapid the expenditure the greater the power he seems to have. What we *have* we do not seem to have ; what we are *losing* is what we seem to possess. If men could but appreciate this truth they would be less prompt in making drafts upon their vital resources through the use of tonics and stimulants. The man who drinks whiskey, takes a tonic, or compels activity by any means but honest work, is quite analogous to the man who draws his check upon his bank for no other purpose than to see if it will be honored. But he is much less wise. The man who draws his check and gets his money has it still for use, but the man who draws a useless check upon his vital bank by tonic or stimulant has lost all that he has drawn in the very act of drawing it. It is a homely old aphorism that " we can't eat our cake and keep it too." Inductive practitioners who believe what they see, have great faith in alcoholic stimulants.

## Vital Science

It is only after knowledge has passed the inductive stage that physicians become total abstainers in theory, if not in practice. The inebriated man feels rich and strong and well, and finds it quite difficult to restrain manifestations of his feelings, but all experience has proved that he is growing poor and weak and sick correspondingly. Excited activity, whether of brain or tongue, hands or feet, is the proof of growing weakness, while the quiet power of the really strong man is that in which we believe long before he manifests it. Would we possess the real power of the strong man or the riches of the rich, let us be willing to seem weak and poor. *Per contra*, would weakness and poverty be our lot, we have only to insist upon exhibiting what little strength and wealth we have.

143. Perhaps no better illustration of the facts of living organization can be found than certain forms of the electric battery. The living organism, like the electric battery, is a reservoir of power which continues silently inactive while the circuit remains open. When the circuit is closed the battery begins to do work, such as ringing a bell or operating a motor, and if the work continues the battery becomes exhausted, even though it possesses the power of recuperation for a long time. Just so the reservoir of vital power continues unused and the reservoir filled as long as no connection is made between the vital elements and external Nature whereby work is done. But as with the electric battery so with the vital organism, as soon as the circuit is closed work begins, and constitutes a process of exhaustion, requiring rest, as the absolutely necessary means of recuperation and

## The Ego ; or, The Constitution of Man

vigor. It is rest not food that recuperates. But as *active* work through battery or organism may cease notwithstanding the power of recuperation remains, it is evident that death has not taken place, for by opening the circuit and giving the battery rest, power once more accumulates, and the capacity for work is restored. So, by giving rest to the vital organism, recuperation and health will follow. And as the battery long silent, and, therefore, recuperated, may suddenly begin to ring the bell, when by some simple contrivance the circuit has been completed, so the long time invalid has often been restored to activity and usefulness by some simple means, provided always that rest has previously recuperated the vital energies. Many of the wonderful results of Mind-Cure, of poisonous drugs, and other forms of treatment are thus explained. And as with the battery whose elements have become exhausted so that no further chemical action will generate power, and neither opening nor closing the circuit will avail to restore action, so the vital organism may continue the processes of work and rest, exhaustion and recuperation, until finally the elements of its constitution have all become changed into other form, causing at length the work to cease once for all. But as with the battery so with the vital organism, death is not annihilation. The elements that made up the battery or the organism have become changed into other conditions of existence, but not destroyed, as we have seen.

144. But we have, we believe, in the Electric Storage Battery an even better illustration of the facts of living organization. When we first began, twenty years ago,



## Vital Science

to advocate the plan of accumulating or storing vital power as an important means of recovering health, the theory was ridiculed, it being said that one might as well undertake to accumulate electricity. To-day men do accumulate electricity, and the fact offers excellent suggestion as to the accumulation of vitality. There is this difference, however. We can increase indefinitely the production of electricity not only, but completely prevent its expenditure, thus placing the sum total absolutely under our control. Vitality, on the contrary, is an inheritance which comes to us as an income which cannot be increased indefinitely, and whose expenditure, though it may be restrained, cannot be wholly prevented. It is, therefore, not absolutely under our control. But we may restrain its expenditure instead of quicken it, as is the usual custom, and so wait until the reservoir is once more filled. It is impossible that great energy can exist other than by rapid expenditure, and unless the inherent capacities are very great indeed, early exhaustion must result. Debility, feebleness, and many forms of invalidism, on the contrary, prevent rapid expenditure and promote long life.

145. The quantity of food digested also determines in large degree the length of a man's life. Great eaters are generally short-lived, unless, indeed, dyspepsia intervenes to save them. Lucky is the man whose dyspepsia is manifested in the stomach where it ought to be, rather than in gout, rheumatism, Bright's disease, diabetes, and a host of other ailments. It is rare that these diseases are not entirely curable if the digestion is carefully attended to. Louis Cornaro, an

## The Ego; or, The Constitution of Man

Italian nobleman, was apparently beyond human skill before he was forty years old, but wrote a book at the age of ninety-five, showing how only by the greatest abstemiousness he was able to live at all. For sixty years he ate but twelve ounces of bread and drank fourteen ounces of light Italian wine twice daily. Dr. Eliphalet Nott, of Union College, we have been told, was feeble almost to death for ten years as a young man, but finally died at the age of ninety-six. Great gymnasts almost invariably die young. We have had in our practice numerous illustrations of the same truths. One patient we recall was a broken-down invalid before he was sixty years of age, feeble, palsied, and barely able to get about, but after nearly two years of recuperative treatment was restored to good health, and now at the age of eighty-four bids fair for many years of life yet, notwithstanding the violent measures of treatment he had previously suffered. Most men have the choice before them, of "a short life and a merry one," or a prudent, abstemious life and a long one.

Vigorous development, high living, good digestion, increases one's capacity for work as long as he has the power of response in him, but not at all his power of continued life, and seldom his power to recuperate from disease. As a rule, it is high living and hearty feeding that makes diseases so often fatal.

146. Our postulate, therefore, is that Vital Force is vital inheritance,—is Life derived from previous Life, while vital energy is a manifestation of Vital Force as this is called forth by *conditions* or *occasions*,—in a word, by Environment. The chief *occasions* for calling

## Vital Science

forth our vital powers are food, work, tonics, stimulants, responsibilities, or any other taxations, and they all produce their effects in the same way, by expending the vital resources. These resources may be used wisely or squandered. But used they must be.

“Who noble ends by noble means obtains,  
Or, failing, smiles in exile or in chains,”

is still a toiler in the Master's vineyard, and the reward is sure. It is he who lives the life of self-indulgence that is wasting his inheritance in riotous living. The parable of the Prodigal Son is exactly adapted to men of our day. Vital power is vital inheritance secured to every man as a daily income, which food, drink, medicines, work, responsibility, call forth and expend. In the process of expenditure there is increasing energy with constantly decreasing force, corresponding to the reduced energy and increasing force of rest and sleep. Force to sustain our energies is the important consideration; energy without force to sustain it, if that were possible, is not only valueless but destructive. Means calculated to recuperate power by reducing energy, as does sleep, are both available and valuable, while those which increase the energies beyond the patient's natural inheritance, as do tonics and stimulants, is destructive to the last degree.

And now, having given what we conceive to be a consistent exposition of the nature and source of Vital Force, and of its relations to the vital energies, including a consistent theory of the Constitution of Man, we have made a step, but not perhaps the most important step, towards the development of an exact

## The Ego ; or, The Constitution of Man

science of human health. Force becomes power only when consistently directed ; natural law is the very essence of natural power. A knowledge of the sources of vital force is valuable knowledge, but how the force works is the important consideration. As the discovery of the law as well as the force of gravitation solved the great problems of the heavenly bodies and gave to us a real science of Astronomy ; as the discovery of the laws as well as the forces of chemistry gave to us chemical science ; so the solution of the great problems of physiology and medicine, and the establishment of a true science of human health, is involved in the discovery, formulation, and elucidation of the great primary law of vital existence, the analogue of gravitation, to which the next chapter is devoted.

## CHAPTER IX.

### LIFE'S GREAT LAW.

#### *The Analogue of Attraction of Gravitation.*

"This wonderful matter to which I shall have frequently to refer in every part of this volume moves and grows. . . . Everything else in Nature may be moved . . . but this alone of all matter moves. The impulse proceeds from within the matter itself."—"Bioplasm," by LIONEL S. BEALE, M.B.F.R.S., King's College, London.

147. THE primal consideration of every system, human or divine, is *stability*, but in order to practical use this stability must be combined with *flexibility*; and with the utmost flexibility if we would secure the utmost usefulness. Governments, financial institutions, business enterprises of all kinds, are intended to illustrate these qualities in high degree, but Nature alone illustrates them to perfection; and so gives to her processes certainty of operation and variety of production even beyond human comprehension. Anything is possible, yet everything is certain within the limits of that possibility.

148. *Certainty* is the product of unchanging law; anything done is proof that it will always be done in the same manner under the same conditions. Variety of production comes secondarily from the same cause. Under the same conditions the same result is obtained; under change of conditions, it is evident, there must be a corresponding change of result. And this is true



## Life's Great Law

whether in chemistry, mechanics, or physiology ; the causes of things are dependent upon *occasions* or *conditions*, as these bring into operation the law of production. This is the reason that out of a few elements we have an immense number of material compounds. Whenever two or more elements are brought together under favorable conditions, the law of production being unchangeable, a compound is produced which is necessarily different from any one of the elements, but this compound is subject to change with every change of condition, as the facts of chemistry are daily proving.

In the same way, it is evident that mechanical motions and products become as numerous as are *their elements multiplied by their conditions*. Is there any reason to believe that the living world is an exception ? The stabilities and certainties of Nature are due to immutable laws sustained by Nature's forces, as these are called forth by *conditions* or *occasions*, so that it has always been the discovery of these laws in the past that has conferred power upon man, and reduced the complexities of Nature to the simplicities of Science. Can we doubt that the same results are obtainable in connection with human life ? Is it conceivable that life, the crowning feature of existence, is less skilfully provided for than an atom of dirt or a drop of water ? It is only in and through law that we have both flexibility and stability,—the utmost variety with the greatest certainty. Everything in accordance with law is the testimony of both Science and Revelation, and man becomes the possessor of Earth's treasures as soon as he has discovered the laws of their production. The first real step towards exact knowl-

## Vital Science

edge is the discovery of the law; all the investigations, speculations, and inductions that man can invent or employ are utterly valueless until the work is completed by this discovery. (§ 12, 21.)

149. But it is not sufficient that we become acquainted simply with the existence of the law; we must secure the correct formula of it, so that it shall constitute a yardstick for all future measurements. (§ 13.) Newton's formula is the great representative formula of a great law, the basis of a greater science; and is as follows:

*Every particle of matter in the universe is attracted to every other particle with a force directly proportioned to the mass of the attracting particles and inversely as the square of the distance between them."*

With this law scientists began at once to measure distances, determine weights, predict conjunctions and eclipses, describe the revolutions of the planets, while many otherwise insolvable problems of science were explained and the certainties of astronomy took the place of the previous speculations and superstitions.

The power and value of this law are to-day undisputed, and Newton is regarded as the great representative scientist. But as a matter of fact, Newton introduced just one single thought into that law. It were inconceivable that so great a truth as Gravitation had escaped the attention of men through all the ages. On the contrary, the existence of the law was well known long before Newton, and its applicability to the affairs of mechanics on the Earth was everywhere

## Life's Great Law

acknowledged. But Newton conceived, and finally demonstrated, its universality. Just as though any of God's laws could be otherwise than universal! In our day it seems strange that men could be so stupid. But perhaps we may find the same stupidity still. Is Life's Great Law universal? We have but two claims to make for this law beyond what all men in all generations have observed and acknowledged: First, Its universality, and, Second, Its applicability to a science of human health. Human *reason* can resist neither of these claims; only indolence and stupidity can avert the necessary conclusions from Life's Great Law. Its existence is proverbial; great systems of thought have been based upon it, and have received the somewhat tardy acknowledgments of mankind; but a consistent working formula has never before been placed before the world.

150. We propound the following:

*Every particle of living matter in the organized body is under the dominion of Vital Force, endowed with the instinct of self-preservation, which is the first and all-controlling law of vital expression.*

This formula might be made still more inclusive, say to include "every manifestation of life in the universe." But as we are to discuss life as it appears in the living organism, we will content ourselves with the statement which includes the laws of such organisms. Universality is the leading thought. It is the thought which makes possible a science of human health. Vital force is neither an invention nor discovery of modern times; it has rather been the effort of

## Vital Science

Modern Science to get rid of it, without success we are sure. And self-preservation as the all-controlling instinct of life, has passed into a proverb. "The survival of the fittest" doctrine of Charles Darwin would seem to be the best attempt to make practical use of it in a scientific discussion, and Darwinism is as far superior to Spencerian Evolution, which was supposed to be, but is not, a further elaboration of Darwin's idea, as one can think. It is evident, therefore, that Life's Great Law is not a discovery in the sense of its being before unknown. The only merit of the author is confessed to be the gathering together of the scattered fragments of a great truth, and combining them into a working formula that shall prove explanatory of all life's facts, and so solve all physiological and medical problems.

151. We think the reader will agree with us that the analogy between Newton's formula of Gravitation and our own formula of Life's Great Law is not a forced one. The analogy is legitimate and natural, and we really do not know how we could have stated the law in other words that should be equally clear and explicit. The formula in either case is a statement of fact rather than of ratios. It is a consistent expression of the primitive fact of mechanical and vital science respectively. As to the value of analogy, Professor W. Stanley Jevons, of University College, London, says, in his "Principles of Science,"—

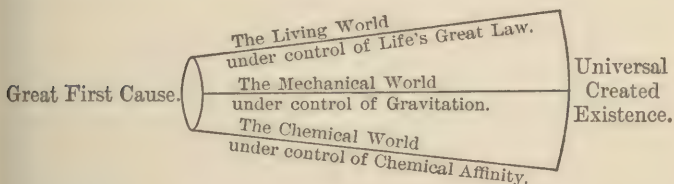
"The whole value of science consists in the power which it confers upon us of applying to one object knowledge acquired from like objects, and it is only so far, therefore, as we can discover and register resemblances that we can turn our observations to account."

## Life's Great Law

And he further says, p. 631,—

“Whoever wishes to acquire a deep acquaintance with Nature must observe that there are analogies which connect whole branches of science in a parallel manner, and enable us to infer of one class of phenomena what we know of another. It has happened on several occasions that the discovery of an unsuspected analogy between two branches of knowledge has been the starting-point for a rapid course of discovery.”

152. And now our Telescope of Science may be varied to illustrate these truths. Nature, we have seen, is a trinity. (§ 83.) More than this, it is full of other trinities, all flowing from the same Great First Cause, which may be illustrated thus :



Chemical affinity is the basic principle of natural existence. Without it tangible matter were impossible. Gravitation gave us a universe of individual worlds. But all were preparatory to the grand object of Creation, living existence, which we place in the superior position as being above all the others.

153. By the universality of Life's Great Law we understand, of course, that it is universal throughout living existence, just as Gravitation is in universal control of masses of matter, and Chemical Affinity of the atoms of matter. That is, it is, as its name implies, the great primal law of vital existence, and



## Vital Science

applies to life wherever life is. It began with Him who is the Source of all Life, and who has "created all things for His own glory," and first appears in Nature in colorless, structureless matter under the name of bioplasm or protoplasm, which the microscope clearly shows to be dominated by the instincts of life, having the power of thought, feeling, and will. The capacity for both hope and fear, courage and despair, are as truly present in the cell as in the organized body. Fear we believe to be the most important element of disease. (§ 230.) It is not the only element, as some seem to think; for if there is fear, there is usually something to be afraid of. And it is usually restrained by hope and courage in those who recover, but ends in the despair of those who die. Vital processes are mental processes. (§ 56.) Life begins with thought and ends with it. It begins with buoyant hope and ends in physical despair. True, there is another life just as there is another body (1 Cor. xv. 44), but courage and despair stand over against each other as do life and death.

154. Perhaps we can find no better authority on this subject than Professor Lionel Beale, of King's College, London, who has written an important work, entitled "Bioplasm," in which he sets forth with great clearness the results of his observations through the microscope. He is excellent authority on the use of the microscope, and, as some evidence of the power of the object-glasses through which he has studied "Bioplasm," he says, "If it were possible to see a hair in its entire width it would appear to be nearly one foot in diameter, and an object an inch in height

## Life's Great Law

would appear to be two hundred and fifty feet high." With a microscope of such powers he has viewed the initial processes of life, and has left on record the results of his observations, of which we quote,—

"The colorless, structureless matter, characteristic of and peculiar to all life on earth, . . . is capable of moving in every part and in every direction. The movements are not such as are communicated . . . from matter . . . in its neighborhood, but the impulse proceeds from the matter itself." And again he says, "This wonderful matter, to which I shall have frequently to refer in every part of this volume, *moves and grows*. Everything else in Nature may be moved and caused to increase by aggregation, . . . but this alone moves towards lifeless matter, incorporates it into itself, and communicates to it in some way we do not understand, its own transcendently wonderful properties. . . . This matter which is found only in living beings . . . may be correctly called living or forming matter, for by its agency every kind of living matter is made, and without it, as far as is known, no living thing ever has been made, or can be made at this time, or ever will be made."

The important fact to be noted in this connection is the fact of reproduction,—the fact that this original living matter, from which all organic matter is produced, "moves and grows,"—"moves towards lifeless matter, incorporates it into itself, and communicates to it" some of its wondrous properties. Thus, Professor Beale observes and reports what has been so frequently urged in this work, that Life comes only from Life, and each after its kind, the process being dependent upon power from within and not from without.

155. But "the cause of the movement," he says, "has not been ascertained." It never can be ascertained by observation alone. *Motion* is a fact of observation, but the *cause* of the motion is a fact of in-

## Vital Science

ference only. No man ever saw a real cause. (§ 54). Causes are forces, which, being invisible and intangible, are known only by their effects. We observe effects, whether these are matter or motion, but we infer causes or forces as the absolute necessity to any effect. In living matter, as Professor Beale shows, "the impulse proceeds from within." What better term to describe the force which produces this impulse than the term Vital Force? When chemical operations are carried forward we refer them to chemical forces; mechanical operations are usually credited to mechanical forces; why not ascribe vital operations to Vital Force? Nothing, we are sure, but "overwhelming bias," to use Mr. Herbert Spencer's own expression, can account for the desire of many to get rid of the term "vital force."

Bioplasm or protoplasm, as you choose, therefore, moves "in every part, and in every direction,"—the impulse proceeding from within. This is the grand distinction between the living and the dead. Anything may be moved, but only living things move themselves,—that is, they act with an object in view. *Life* is subjective, while *things* are objective. How else should we determine whether a thing is alive or dead other than the presence of *motive* in the living, and its absence in the non-living? The essential fact of life is thought, and the power to act in response to thought. Protoplasm is not Life; it is the medium through which Life first exhibits itself. It may be dead as well as alive. And when dead it answers to very different tests from those exhibited by living protoplasm. (Beale.)

## Life's Great Law

156. Another important truth in this connection is that all Life first appears in exactly similar protoplasm. Professor Henry Drummond, quoting Professor Thomas H. Huxley, gives a vivid picture of this truth in the following from his "Natural Law in the Spiritual World":

"What makes one little speck of protoplasm grow into Newton's dog, Diamond, and another exactly the same into Newton himself? It is a mysterious something which has entered into this protoplasm. No eye can see it. No science can define it. There is a different something for Newton's dog, and a different something for Newton; so that, though both use the same matter, they build it up in these widely different ways. Protoplasm being clay, this something is the potter. And as there is only one clay, and yet all the curious forms are developed out of it, it follows necessarily that the difference lies in the potters. To understand unmistakably that it is really the potter who does the work, let us follow, for a moment, a description of the process by a trained eye-witness. The observer is Mr. Huxley. Through the tube of his microscope he is watching the development, out of a speck of protoplasm, of one of the commonest animals; 'Strange possibilities,' he says, 'lie dormant in that semi-fluid globule. Let a moderate supply of warmth reach its watery cradle, and the plastic matter undergoes changes so rapid and yet so steady and purpose-like in their succession that one can only compare them to those operated by a skilled modeller upon a formless lump of clay. As with an invisible trowel the mass is divided and subdivided into smaller and smaller portions, until it is reduced to an aggregation of granules not too large to build withal the finest fabrics of the nascent organism. And, then, it is as if a delicate finger traced out the line to be occupied by the spinal column, then moulded the contour of the body; pinching up the head at one end, and the tail at the other, and fashioning the flank and limb in due proportion in so artistic a way, that after watching the process hour by hour, one is almost involuntarily possessed of the notion that some more subtle aid to vision than an achromatic would show the hidden artist, with his plan before him, striving, with skilful manipulation, to perfect his work.'"

## Vital Science

And Mr. Drummond proceeds to call attention to the fact that the artist is working according to law, "with his plan before him." He has a plan, the product of thought, and he works in accordance with the thought expressed in the plan. What law shall we say? Drummond calls it "conformity to type;" "what Darwin calls the law of unity of type;" "contained to a large extent," says Drummond, "in the law of inheritance." Mr. Drummond continues: "The artist who operates upon matter in this subtle way, and carries out this law, is Life." And further he well says, "As in the natural, so in the spiritual, there is a Principle of Life. We cannot get rid of that term."

157. Life, therefore, is an invisible principle of existence, derived from previous life, an inheritance, illustrating the qualities and characteristics of its progenitors. Considering it in the terms of physical science, we may well describe it as Vital Force. And that this force is endowed with the instinct of self-preservation, which belongs to life in its initial stages just as truly as in its organized forms, may be shown from facts gleaned from varied sources. Even the materialist testifies to the operations of protoplasm, apparently unconscious of the fact that he is describing the processes of an invisible principle within it.

"There is nothing," says J. H. Kellogg ("Home Hand-Book"), "more interesting in all the realm of science than to watch with the microscope the operations of protoplasm. Let us study this wonderful phenomenon for a few minutes. . . . Now we are rewarded by seeing just what we are in search of, curious little round masses so transparent as to be almost invisible. They are not very numerous, but scattered here and there about the field. Presently we perceive that some are



## Life's Great Law

changing their form. A moment ago the first one we inspected was as round as a watch crystal; now it has become elliptical in form. A few minutes later we look again, and it has stretched itself out in a long filament like an angle-worm. Presently it begins to draw itself up into a round mass again; and, before we can write it, it has assumed its original shape, but has changed its position. That is the way the little creature moves about. It makes itself into the shape of a worm, and then crawls just as a worm does, by making one end fast and drawing the rest of the body up. What does it move about for? Why may it not remain stationary? . . . A few seconds ago it was as round as a full moon. Now there is a little pocket in one side. The pocket is growing deeper and deeper. What is the object of such a curious procedure? . . . The mystery is solved. There is a little speck of food which the little creature wishes to get, and so he has made a pocket to put it in. The queerest part is yet to come, so we must watch patiently a moment more. Now the mouth of the pocket is closing up. Evidently the little fellow is afraid he may lose the precious morsel, and so he is going to shut the pocket to prevent its escape. Now the opening is closed, and before we are aware of it the pocket itself has disappeared, and there is the little particle inside. This seems a miraculous process, but it is the way these little creatures have of taking food. . . . As we become better acquainted with protoplasm, it does not seem so strange, after all, that it should be capable of making a plant, painting a flower, building a tree, or even of forming a man; and that is just what it does."

In other words, we observe through the microscope that those individually minute germs of life, called bioplasts or protoplasm, possess the instincts of life, and move according to the laws of life, as these are illustrated in the cell, then in the organs of the individual, then in the individual himself, and, finally, in the family, society, state, church, everywhere in the living world. In a word, every particle of living structure in the universe, vegetable or animal, animal as well as human, and human as well as divine, no matter when, where, or how organized, or whether

## Vital Science

organized at all, lives and acts in obedience to this first law of life,—self-preservation,—the preservation of its interests.

158. Further illustrations of the truth of these statements are readily cited. The remarkable and apparently inconsistent conduct of the man who clings to life with utmost tenacity after every just reason for living has disappeared, and nothing left but sorrow and misery, notwithstanding the claim that death would open to him joys eternal, is excellent proof. Every physician knows that the firmest Christian shrinks from death, and often holds on to life with desperation long after reason has ceased to justify the instinct. It is this first law of vital expression which causes the flesh to be so weak and shrinking, and shows that intellectual belief has little to do with it.

The horror with which we contemplate the loss of any part of our organism is only explained by this law. The pulling of a tooth is a very simple affair, and the pain but momentary, but we generally bear the pain of its presence a hundred-fold before we are willing to submit to its extraction. Again, how many have suffered for hours with the aching tooth, until forced to seek the dentist's chair, only to find the aching has wholly ceased in the presence of the greater danger, amputation !

The fear of the contemplated loss of a limb by amputation is explained in the same way. Notwithstanding reason has taught us that our best interests will be served by its removal,—notwithstanding we are assured that the operation will be painless,—we still shrink in terror before the fact.

## Life's Great Law

The excitement, trembling, and, perhaps, exhaustion of the criminal as he goes to his execution exhibit and explain the same law. "Do it quickly, and do it surely," if it must be done, is the cry of instinct. The pain is nothing, but the suspense is terrible. The conscious presence of the dread fact coming daily nearer, by the slow march of events, is the real punishment. In all these cases it is evident that the instinct does not belong to the intellectual life as much as to the organic or unconscious existence.

159. The nature and origin of evil is suggested by this law. The struggles of life so intensify this principle of self-interest that it sometimes overwhelms every other consideration. After a man has worked himself out of pinching poverty by hard toil and exacting scrutiny of every expenditure, until he is the possessor of millions, we find him still possessed of the "ruling passion strong in death," consequent upon that constant exercise which has developed his faculties.

The instinct of self-preservation, being the cause of all human activity, must also exist in systems, and so be liable to the same perversions. Lawyers join hands with lawyers, and doctors with doctors, to protect the interests of their profession, and perhaps to oppress the people at large, notwithstanding the bickerings and quarrellings among themselves. Democrats close up the ranks against Republicans, and Republicans against the common enemy, in spite of bitter factions in the party. The money-kings have a common sentiment of defence against the masses, and the masses against the moneyed aristocracy. Even

## Vital Science

the clergy are animated by an *esprit de corps* that often oversteps the bounds of prudence. In a word, the instinct of self-preservation inheres,—

*First*, In the minutest cell of the organized body ;

*Second*, In these cells as aggregated in communities ;

*Third*, As organized into distinct organs ; and,

*Fourth*, As organized into the organism as a whole, making the interests of each individual superior to the interests of the common brotherhood. But the individual soon enlarges his sphere of operations, and family is to be protected as against institutions, and institutions to which we belong as against the world at large.

160. The operations of this principle in every department may also be seen in its general perversions. No individual can make a positive movement in any direction without disturbing or threatening the interests of some system, and even if the system is in itself good, it is often disturbed by unreasoning fears for its safety whenever new ideas are forced upon its attention. The greater the truth, and the greater the evil to be remedied, the greater the commotion and opposition which it must meet. It is this truth which explains the statement of the Saviour that He “came not to bring peace, but a sword.” Though the angels sang “peace on earth,” suggestive of the final triumph of truth, disorder, commotion, and crime have always led the way. The benefactors of humanity have been the world’s martyrs. We build the sepulchres of the prophets which our fathers have slain, and make heroes of those who were the despised and rejected of men.

# Life's Great Law

## LIFE AND MIND.

161. But the most important element of Life's Great Law is yet to be considered, the mental element. Instinct presupposes thought. Self-preservation would be a worthless law unless some thought of means towards the end were involved in its existence.

But thought has heretofore been ascribed to the operations of the brain only; and self-preservation is supposed to be an intellectual process which sadly fails in practice in cases of disease. But self-preservation is not simply an intellectual work. We have already seen that the bioplasts act because they think, and, besides, every anatomist knows that brain-substance is scattered here and there throughout the organism in connection with nerves, and there is no conceivable excuse for doubting that this brain-structure thinks, no matter where it is located. The human brain is the great centre of intellectual and animal life, it is true, but that fact only confirms and explains the work of the numerous adjuvants scattered all along the spinal column. And then there is another nervous system called organic or sympathetic, and it has brains, as well as nerves, just as surely as anatomy tells the truth. And if it has brains, what are they for but to think? The solar plexus of nerves lying behind the stomach controls the functions of liver, stomach, bowels, etc., to a marked degree, and in connection with its subordinate ganglia performs its functions as all other brain-substance does,—viz., through thought. But behind all these are the individual workers in the cells that make up all organs, and it is every-



## Vital Science

where agreed that the individual worker is the cell or in the cell. And how shall the work of liver, lungs, stomach, bowels, muscles, be performed except as all other vital work is performed, by a skill based on thought and will? The day laborer in society *thinks*, even if not as effectively as the college professor, lawyer, or doctor, and *works* only because he thinks and wills to work, just as every cell in the body works because it thinks and wills to work. And the ganglia and brain are only head centres of organization which assist and advise the less capable laborers. The nerves are telegraph wires, the ganglia are telegraph offices in charge of subordinate officers, while the brains are the great centres of thought, decision, and will. We shall see in its proper place that the terms reaction and reflex as applied to living structure are misnomers. Sensation from the surface is a real transmission of intelligence, and the result usually called reflex action is instruction telegraphed to the proper muscles. A page from Ranney's "Applied Antomy" offers important testimony in this connection. On page 311 he says,—

"We have come to learn that each group of cells—perhaps each cell—in this gray matter represents a certain kind of intelligence; and that these cells are probably in communication with one another by means of white fibres. It is the sum-total of these intelligences that imparts to the cord its characteristics as an organ. As each one of these cellular groups and its inherent intelligence is more or less independent of all others, so the combined intelligence of the cord's gray matter is independent of the combined intelligence of other collections of gray matter; and it is a recognized fact that the spinal cord has a function of its own. This has been exemplified by experiments on headless frogs and decapitated human beings. Cut off the head of a

## Life's Great Law

frog, permit it to recover from the shock of the operation, then pinch its skin, and it will hop away; or, throw it into the water and it will swim. Place a drop of acetic acid upon the belly of such a frog and it will endeavor to brush away the irritation with one foot. Now amputate the leg of this foot at the knee. The animal will make several futile attempts to reach the irritated spot with the stump, and, failing, will, after some hesitation, make use of the uninjured limb for this purpose. It is easy to repeat this well-known experiment of Pfluger's. Robin witnessed some instructive phenomena in a criminal whose head had been removed an hour previous at the level of the fourth cervical vertebra! The skin around the nipple was scratched with the point of a scalpel. Immediately there ensued a series of rapid movements in the upper extremity, which had been extended upon the table. The hand was brought across the chest to the pit of the stomach simultaneously with the semiflexion of the forearm and inward rotation of the arm,—a movement of defence, as it were. All this teaches us the more clearly to understand that it is intelligence of the cord's gray matter that is called into play in a thousand actions that must take place without the aid of that conscious intelligence which we call 'mind.' The intelligence of the spinal cells is quite sufficient to enable men to walk, to play on musical instruments, to become experts in handiwork, to ride on horseback, whether awake or asleep, to become acrobats, and to unconsciously acquire such a handwriting that its minute peculiarities shall be unerringly recognized by the trained eye."—PROFESSOR AMBROSE L. RANNEY, A.M., M.D., University of New York.

162. In these varied facts we have the perfect explanation of the failure of drugs or other appliances to produce uniform effects on the organism. The organism is not an object to be acted upon, but a subject which acts because it thinks, and the action does not depend solely upon the drug or other treatment administered, but upon what the organism thinks about it. The physician who fails to take into account the patient's likes and dislikes, his idiosyncrasies and peculiarities, is an automaton and not a physician at

## Vital Science

all. It is not the quality or quantity of drug, but what the organism thinks of it, that determines results ; and explains why it is that scarcely two physicians are to be found who agree as to the merits of any drug, or as to the size of the appropriate dose. No classification of drugs has ever been effected ; of the ten thousand remedies of the schools, not one is reliable for any purpose in some patients, and few of them even measurably so for most patients. And this is the reason why the Homœopath with his infinitesimal potency secures results. If the result depended upon the power of the drug, it would decrease as the dose is diminished ; but experience proves that it does not decrease, which is explained only by the fact that it is the organism that acts and not the medicine. The slightest touch of a whip to a spirited horse will prove much more satisfactory to the driver than will a blow from the same whip ; so the vital instincts will respond to a mere suggestion more kindly than to violence.

163. No better evidence of the universality and power of this law can, perhaps, be found than the fact that it offers a consistent explanation of the successes and failures of all forms of treatment that have ever been employed for invalids. Powwowing, the Indian Medicine-Man's incantations, Faith-cure, Mind-cure, as well as Regular Medicine, at times cures people,—a fact taught by the highest authorities. We report a few instances from Dunglison's "*Materia Medica*," page 39 ; the first from a scientist too eminent to allow question of its truth :

"The author alludes to a well-known case, narrated by Dr. Paris in his life of Sir Humphry Davy, in which Dr. Beddoes and Davy

## Life's Great Law

were about to try the effects of inhalation of nitrous oxide gas for the removal of palsy, but having inserted a thermometer in the man's mouth, the patient believing that the thermometer was the curative agent, and saying that he felt something better, it was determined to administer no gas, but to repeat the application of the thermometer, and to trust it alone; this was accordingly done daily for a fortnight, and at the end of the time he was dismissed cured."

The sympathetic powder of Sir Kenelm Digby attained to great reputation in the same way. Even King James I. performed many wonderful cures, but Duglison remarks, "at length the composition of the powder transpired, and the charm soon evaporated." Francis Bacon reports concerning ointments applied to the weapon that made the wound as follows: "It is constantly received and avouched that the anointing of the weapon that made the wound will heal the wound itself." "In this experiment upon the relation of men of credit," continues Bacon, "you shall note the following points: First, the ointment with which this is done is made of divers ingredients, whereof the strangest and hardest to come by are the moss upon the skull of a dead man unburied, and the fats of a boar and a bear killed in the act of generation," etc.

164. But we need not pursue this subject; we cite these facts as illustrative of the truth that it is not the medicine, nor ointment, nor treatment that cures, but rather the patient's vital power directed by his thoughts, or rather his faith,—faith being conceived to be a fact of organic life just as truly as of the intellectual life. Faith is the conviction of propriety, of duty, of right, which induces work, and is possessed by all organs which do work, and without faith there will be no

## Vital Science

consistent work. "According unto thy faith be it done unto thee," is Science just as truly as it is Scripture, and it is simple, common-sense just as much as it is either. "Whatsoever is not of faith is sin," and means failure. Faith is an important adjuvant of cure in all cases, and in some cases it is the only thing needed, because the only thing lacking to emphasize the healing processes already in operation. The faith-cure is in use in this country, and always has been in the world, but it is too generally imagined that in some mysterious way divine power is put forth for the patient in answer to the prayer of the faithful ones, when in reality their prayers and their faith never changed the Unchangeable one iota. Nor is the cause of cure outside the patient; we have seen that all power of life, healing, happiness, is in the man, and not outside of him. "For, lo, the kingdom of God is within you," and healing is a process of evolution just as birth, growth, and development are. And no matter what the appliance, when cure is effected, it is done through vital power brought into operation by convictions of propriety or necessity induced by the appliance.

165. Life's Great Law, therefore, constitutes the true principle of Life, being made up of Vital Force directed by Self-preservation, or of Self-preservation sustained by Vital Force, as we choose. All thinkers have agreed to the existence of both these elements of life, but this, we believe, is the first time in the history of the world that they have been combined in accordance with the teachings of Science, so as to make the Vital Principle a great primal fact from which we may deduce conclusions and carry on prac-



## Life's Great Law

tice. The older authors have been very emphatic as to the existence of the Vital Principle. Professor Robley Dunglison says ("Materia Medica"),—

"Physiologists have noted in every living body an instinctive action—an action of the living principle, whether manifestly directing its operations to the health, preservation, or reproduction of the living frame or any part of it. This applies to the plant as well as to the animal. It is the *vis medicatrix naturæ*, for and against which so much has been said, but which, if restricted to the above-mentioned acts, can no more be denied than the existence of life itself, of which we know nothing except by its results."

The philosophy of Herbert Spencer has labored hard to confuse this subject, by claiming that Life is simply a method by which the physical forces act, even though it is admitted to be unexplainable how the results are produced. (§ 38, 42.) Others would claim vitality to be simply chemical affinity in some form. The great Baron Liebig, who is hardly surpassed in literature for attention to this subject, says, as quoted by Martin Paine,—

"Everything in the organism goes on under the influence of vital force, an immaterial agent, which the chemist cannot employ at will. . . . It is a peculiar force, because it exhibits manifestations which are formed by no other force."

*It is not to be conceived, however, that Vital Force is the only force operative in a living organism, as we have already seen. (§ 134.)* Every foundation exists for its superstructure, but it does not constitute the superstructure. All things are ours by right of inheritance, but all things are not us, nor can they be made into us. Neither chemical, mechanical, or electrical principles can produce Life, but Life can readily

## Vital Science

appropriate these to its uses. They cannot be transformed into Life, but they are employed by Life as aids to its purposes. Chemical forces always remain chemical, mechanical forces and principles are always mechanical, whether observed in operation in living organisms or in external nature. So while the food one eats and the air he breathes readily supply to us physical force for the performance of physical work, they never do and never can supply to us vital force,—the force that preserves, heals, thinks. Food and drink occasion vital development and call forth vital power, but they yield only physical and chemical power. They may develop what previously existed; call forth and expend the man's inheritance; may give him the appearance and feeling of strength, and enable him to perform physical duties; but Life, vital power, the power that heals and saves life, comes only from previous life through parentage, as we have repeatedly seen.

## CHAPTER X.

### ENVIRONMENT ; OR, THE LAWS OF VITAL RELATION.

"Now the difference between Law in the narrower and Law in the larger sense cannot be better illustrated than in the difference between the three special laws discovered by Kepler and the one universal law discovered by Newton. The three laws of Kepler were simply and purely an observed order of facts. . . . The higher law discovered by Newton revealed their connection and their cause."—ARGYLE'S "Reign of Law."

166. THAT Environment exercises an important influence upon human life no one can doubt; but just what that influence is, and how it is effected, cannot be asserted off-hand. As well undertake to declare the distance between two points by simply observing the appearance of the road, as to decide by observation alone how heat or cold, food or drink, rest or labor, tonics or stimulants, affect a living organism. Imagine what Mechanics was before weights and measures had been invented, or chemistry before its laws had been discovered, and we have a good idea of physiology and hygiene as they are to-day. Environment is a subject for scientific investigation carefully conducted in accordance with its laws. We propose to establish by logical processes the laws which control the relations of the living organism to its environment; that is, the relations between Life and the things which influence Life, and from thence proceed to test

## Vital Science

the validity of these laws by applying them to a consistent and reasonable solution of the great problems of medical science, which have heretofore baffled the skill of the ages,—viz., The *modus operandi* of medicines, The nature of disease, The law of cure, and finally to establish a scientific etiology, pathology, and therapeutics. The consistency of all the results reached will be a demonstration of the truth of all the parts; for it is impossible that error can agree with error so as to form a coherent whole. Truth always agrees with truth, so that the solution of the one problem yields a corresponding solution of all the problems; all the storehouses of physiological truth swing wide open in answer to the application of the one key.

167. In pursuit of this purpose we note a self-evident truth: We must have Life before we can suffer, enjoy, or be influenced by Environment. Life is not the product of Environment, but of Inheritance, as every one must see who has not wilfully put out his eyes in order that he shall not see. The great problems of Medicine and of Hygiene are all involved in a study of *how* Environment affects human life; that is, what are the forces and the processes by which its effects are produced. The laws by which the forces operate, and which, therefore, control and explain the effects, are not less important than the sources of the force. These laws are empirical, it is true, deriving their power and significance from Life's Great Law, just as Archimedes's and Kepler's laws derived theirs from Newton's. But they are laws in that they describe the "invariable sequence of facts."

## Environment ; or, The Laws of Vital Relation

168. Man has been for ages the victim of delusions, of which the astronomical delusion that the Sun revolves around the Earth is the great example. But this was a harmless delusion in comparison with those which are sending millions to untimely graves every year. Men have learned some truths, but the truths yet to be discovered and disclosed are as mountains to mole-hills, and millions to units. Things are not what they seem. They are too generally the exact opposite of what they seem.

169. We proceed to the consideration of the Laws of Vital Relation, four in number, which together cover the whole ground of vital activity and development, and explain everything. These laws are properly denominated

THE LAW OF ACTION,  
THE LAW OF POWER,  
THE LAW OF EFFECTS,  
THE LAW OF VITAL ACCOMMODATION.

170. First, then,

THE LAW OF ACTION. WHAT WE SEE.

*Whenever action occurs in the living organism, as the result of extraneous influences, the action is to be ascribed to the living thing which has the power of action, and not to the dead.*

But perhaps we will be told that there is nothing dead,—that eternal motion is the great fact of existence. True, anything may be moved, but some things have the power to move themselves. The inquiry is a very proper one as to which moves and which is



## Vital Science

moved, which acts and which is acted upon. The Century Dictionary tells us that "an act is an exertion of energy or force," and an action is "a change in which the cause lies within the subject." No one will dispute, we think, that a living organism has the power of action, whatever may be said of extraneous substances, such as medicine, food, drink, etc. And no one will question the character of the action which this organism performs. It digests food, absorbs drink, moves its stomach, bowels, operates its liver or its kidneys, sees, thinks, feels, works; all of which indicate that it has a power in itself to move itself; that is, to act. Will any one suggest that medicine has the power to move itself? Once it is placed on a druggist's shelf, will it ever get off that shelf of its own volition? If, then, it cannot move itself, how shall it move other things? And yet we hear continually of medicine acting upon liver, stomach, bowels, etc. Medicine is material that cannot act. Inertia is its primal characteristic; it is capable of being acted upon. And Life is a *power* that can act upon it. Whenever, therefore, medicine is brought in contact with a living organism the resulting action is vital action,—the action of the living thing that has the power of action in itself. The correctness of this conclusion will be suggested by considering that from beginning to end the living organism has, beyond all question, been the actor. It was a living mind that conceived the medicine, that manufactured it, prescribed it, administered it. It was hands that carried it, mouth that opened for it, tongue and œsophagus that swallowed it, stomach that received it, bowels or other

## Environment ; or, The Laws of Vital Relation

organ that ejected it. It was nerves, muscles, vital organs, that controlled its operations all the way through. It is an absurdity, therefore, to say that the action which follows the administration of a drug is the action of the drug. There is mechanical contact, of course, and there may be Chemical Affinity between the elements of the drug and the organism, but the action which we behold is the action of the vital system upon the drug in response to its first law, the Law of Self-Preservation.

The same principles apply to food, drink, clothing—to every habit and indulgence. It is the living organism that acts in obedience to its first law,—to receive or reject.

Is not vomiting an action of the vital system? Is not purging equally so? If, then, the so-called action of an emetic or purgative is really an action of the vital system, why are not the effects of every other medicine, food, or drink due to vital action? The physician ascribes the action of the drug to *selective affinity* (he thinks). We admit the *selection*, but it is Life and not death that *makes it*.

171. The confounding of the term "cause" with "occasion," which we have repeatedly seen (§§ 72, 73, 74, 101, 126) is so common in the philosophies and so destructive to exact knowledge, we have here once more fully illustrated. We saw very clearly in Chapter V. that the *cause* of any operation is always internal to the thing which operates, works, or acts, while the *occasion*, defined as the "indirect cause," is usually, if not always, external. The cause of the growth, development, and activity of any organism is

## Vital Science

interior,—an inheritance (§ 131), while the *occasion* for these activities is Environment, or something which affects it from without. The *cause* of vomiting, purging, coughing, sleeping, waking, thinking, working, eating, drinking, digesting, is *in* the organism, while the medicine, it is true, may be the *occasion* for some of these. For illustration: a whip, dog, or locomotive may be the *occasion* of the horse running away, but the *cause* which is defined as “the power by which a thing is” must have been *in* the horse. So a dose of calomel may be the *occasion* for increased action of the liver and bowels, but the *cause* of the increased action is *in* the organs themselves. The liver alone can secrete bile; no amount of calomel can usurp its functions. The bowels may move and empty themselves, but it is absurd to suppose that calomel may move the bowels. Calomel may be the *occasion*, but the power inherent in the bowels is the *cause*. The bowels may run off just as the horse may run away, but the calomel is no more the cause of the bowels running off than the whip or dog is the cause of the horse running away. Popular phraseology, it is true will say that the dog did cause the horse to run away, But it also asserts that the sun rises and sets.

172. But few thinkers will continue to urge that medicines really act upon the vital system. They rather take refuge in the inquiry, What difference which acts, the medicine or the organism, as long as we get the action? Our answer is that no truth can be insignificant to the scientist. Rather may we say that to be *exact in observing*, and *correct in describing what we observe*, are the all-important qualities of the

## Environment ; or, The Laws of Vital Relation

scientific mind, who well knows that mighty consequences often hinge upon apparent trifles. The scientific fact that the living organism acts upon extraneous matter, such as medicine, food, drink, etc., and not the medicine, food, drink, that acts upon the organism, is exactly analogous to the fact that the Earth revolves around the Sun, and not the Sun around the Earth, and much more important. The living organism is the centre around which Environment revolves, and not Environment that is the central fact. Life has to do with Environment ; Environment has no dealings with Life.

In this connection we note how infinitely varied the effects of the same substances on different organisms, and upon the same organism at different times or under different conditions. And this is excellent proof that it is the organism that is the real agent in producing the effect and not the medicine. No physician can tell with certainty what effect upon a living organism a medicine will have at a given time. So he cannot tell what the effect of food may be in a given case. He knows the rule, but he doesn't know how soon he will observe the exception to the rule.

Again, no amount of calomel will move a dead man's liver or bowels. No medicine will stimulate or strengthen or move the organs of a dead body. If it is the purgative that acts upon the bowels, then the dead should be moved by it just as well as the living bowels are. But inasmuch as life is always the prerequisite to the so-called action of medicine, the proof is complete that it is the life that acts and not the drug. (§ 115.)

## Vital Science

And now, how shall we explain the many and peculiar effects of the varied drugs upon the living organism?

173. The essential fact of Life, as we have already seen, is thought. The organism acts because it thinks, so that how it thinks is the determining factor in every action. If it wants the food, it will receive it, and it is often particular as to the kind it wants. If it does not choose to receive the food, it may vomit, purge,—produce the pains of colic or indigestion,—just as the drug seems to do. This is why “He that doubteth is condemned if he eat,”—why “it is evil to eat with offence.” This is why faith, imagination, infinitesimal potency, produce great results. This is how medicine, baths, electricity, change conditions; they change conditions by changing the vital thoughts. This is what the physician does when he prescribes; and why bread pills are often more potent for good than opium or calomel, as the experience of Dr. Isaac Jennings so clearly proved. (§ 234.)

174. The nature of disease is explained in the same way as the *modus operandi* of medicine. The immediate effect of a poison is a morbid vital action, and medicine is a poison, therefore the action of the organism upon the medicine is disease. So the action of the organism against any other agency which is morbid or repugnant to the vital instincts is disease, and illustrates the efforts of the organism to dispose of the offending material. Purging by a drug is a perfect illustration of diarrhœa and dysentery. Vomiting from the emetic is carried on in the same way that vomiting from other causes is. The excitement



## Environment ; or, The Laws of Vital Relation

occasioned by alcohol is precisely similar to the excitement occasioned by danger, by the cry of fire at midnight, or the discovery of the burglar.

This Law of Action, and The Law of Power as well, to which we shall shortly direct our attention, are, as we have seen, logical deductions from Life's Great Law. In this way : Life's Great Law declares an organism under the dominion of a power called Vital Force (Chapter VII.), which force operates according to a law,—the Law of Self-Preservation. (Chapter IX.) This organism, therefore, possesses as a primal fact of its existence the power to act, and the capacity to determine how it will act. Whenever action occurs, therefore, because of contact with material things, the action is necessarily vital action and not medicinal, chemical, electrical, or mechanical.

175. And this brings us to a consideration of the  
Second Law ; The Law of Power—What we  
Feel.

*The power employed and consequently expended in any vital action is vital power,—is power from within and not from without.*

This law it will be seen is a necessary corollary to that which has preceded it. If it is the organism that acts, then it is the organism that furnishes the power of action, and consequently the power expended in the action. And this is the reason why dead men, and sometimes half-dead men, fail to respond to a medicine. They fail to respond because they do not have the power of response. Herschel's rules already employed by us for determining the real cause of the effect is peculiarly applicable here. These rules are :

## Vital Science

- “First, Invariable connection between cause and effect ;
- “Second, Invariable absence of effect with absence of cause ;
- “Third, Increased or diminished intensity of effect with increased or diminished intensity of cause.” (§ 115.)

If, therefore, medicines act, or are the cause of vital action, they will always produce the exact effect. And if they are withdrawn all effect will cease. Or if the dose is increased or diminished the effect is correspondingly increased or diminished. Every physician knows how none of these rules apply to medicine. He ought to know also that the rules prove conclusively that it is the living organism that acts, with invariable effect when there is life, with invariable absence of effect when there is no life, with increased or diminished intensity of effect when there is increased or diminished life. Life is the cause, the living organism the actor, which supplies the power of action, while the medicine is an object to be acted upon. Being a poison, it induces vital resistance just as the presence of the burglar or highwayman does, and correspondingly compels expenditure of vital power.

*The modus operandi* of a medicine, so called, is, therefore, the *modus operandi* of the vital organism, as its powers are called forth by the drug. The action which results is disease, and the power expended is vital.

176. Medicines, therefore, are supposed to cure diseases by producing diseases (§ 224), and the actions of both the medicine and the disease, being actions of the

## Environment ; or, The Laws of Vital Relation

vital system, often become exhaustive, because they produce their effects by expending vital power. This is the reason why disease is so depleting. It is an obstructed, abnormal vital action, and wastes vital power by excessive friction and sometimes by excessive action. This is the reason also why *that which causes disease—viz., drugs—is so exhaustive*. Purging or vomiting by medicine is just as depleting as the same diseases from other causes. The excitement caused by alcohol, tonics, tobacco, is not less exhausting than a corresponding excitement from other causes, say the bite of a rattlesnake or the demands of the highwayman. And they all make the subject feel stronger and forget his pains for the same reason. It is the vital system that acts and supplies the power of action in all these cases. And this reservoir of power is not exhaustless, as the records of the cemetery prove. Stimulation by a caustic irritant like alcohol, or by an intensely exciting bath, or by the yell of fire at midnight when you are occupying a room in the tenth story of a hotel, is never recuperative no matter on what pretence they are employed or how invigorating they seem to be. When the long roll of the slain by the use of tonics and stimulants shall finally be called, there will be included, we opine, in the dreadful list very nearly the whole human family.

And now we pass to the consideration of a third law of Environment, which shall be here known as

177. THE LAW OF EFFECTS.—*The secondary effect of any act, habit, indulgence, or agency upon the human organism is the exactly contrary or opposite of the primary effect.*

## Vital Science

This law would seem to be analogous to that well-known law of physical science that action and reaction are equal and opposite, in which respect the laws of the macrocosm illustrate those of the microcosm. Their influence in their department is found to be universal ; their power is all-controlling ; they prove that the apparent is the opposite of the real. As the Sun does not revolve around the Earth, so the immediate and apparent effect of any act, habit, indulgence, food, medicine, drug, clothing, is not the real and permanent effect.

178. The illustrations of the truth of this law may be drawn from sources both scientific and popular. Perhaps no better illustration can be found than the effects of anæsthetics, a description of which we condense from the "International Encyclopædia of Surgery," as follows :

"PHENOMENA OF ANÆSTHESIA.—A description of the symptoms occasioned by the inhalation of the vapor of ether or of chloroform will convey sufficiently accurate idea of the manner in which artificial anæsthesia ordinarily supervenes. The first effect . . . is a local excitement of the nervous apparatus of the respiratory passages. The senses of taste and smell . . . are powerfully excited. The activity of the salivary glands is aroused, and acts of deglutition are stimulated. . . . The initial effect is disturbance of function ; the subsequent effect is paralysis of function. Disturbance usually assumes the form of exaltation. . . . There is a humming sound in the ears and subjective impressions of light flash in varied forms across the visual field. The pulsations of the heart can be felt, and the vermicular movements of the intestines can sometimes be perceived. The arteries throb, the brain seethes, waves of heat flush the surface of the body, perspiration appears on the face, and may become general, the pulse rises, respiration is accelerated, the pupils contract, the eyes close, reflex irritability is exalted, and in its general appearance the patient resembles a person in the early stages of alcoholic intoxication.

## Environment ; or, The Laws of Vital Relation

To this period of excitement succeeds the stage of diminishing function; cutaneous sensibility grows less, the temperature falls, the pulse recedes, the blood-pressure diminishes, the respiratory movements become deep and full, voluntary movements cease, consciousness gradually fails, reflex movements are abolished, and the patient becomes utterly insensible."—Vol. I. p. 406.

It is worthy of remark that these effects belong to both ether and chloroform, and so may be regarded as the *law of anæsthesia*.

ALCOHOL furnishes a more popular illustration of this law. Its use is so general, and its effects, both primary and secondary, so universally observable, that we may properly call attention to its delusive nature. For ages it was accepted as *the good spirit of God*, a panacea for all human woe, until its use had become well-nigh universal. The important corroborative fact is that every claim for it has been disproved, and larger experience has shown that its ultimate effects are the exact opposite of those so generally ascribed to it. It was so found to warm a man when he is cold, and cool him when he is hot; to strengthen him when he is weak, and weaken when he is strong; contributing to the brilliancy of the orator, or the stupidity of the maudlin roisterer, that it has had ascribed to it every virtue on the one hand, and been denounced as the source of every woe on the other. Popular opinion has long varied, and continues still in dispute with regard to it. Our law explains the contradictions. As a first effect, alcohol does indeed exalt the powers of mind and body, giving hope, comfort, brilliancy, to secure in the reaction the very opposite condition of things. Its real effect is, of course, the



## Vital Science

secondary. The primal effect passes with the indulgence, but the secondary effects continue, and are repeated for days or weeks, until, with a continued succession of secondary effects, the most abject helplessness and stupidity are experienced.

The use of opium has also become sufficiently general to make its effects well known. The heightened sensibilities, pleasurable sensations, joyous emotions, awakened by its use soon pass away, and leave the terrors of hell behind them. The brilliancy of thought and intellect, and ecstasy of enjoyment, give way to languor, stupidity, horror unutterable.

COCAINE is a more modern illustration of the same principles. It dupes and enslaves its victims as alcohol and opium long have done, only to bring upon them the horrors of the damned. Chloral and bromide, so latterly discovered, but so generally used as anodynes and soporifics, have already alarmed physicians because of their dangerous character. Tobacco, tea, coffee, cocoa, all necessitate repetition of use for the same reason.

179. This law explains *the power of habit* in the use of destructive agencies of any kind. When for any reason an individual *indulges*, he gets a temporary relief with a real increase of the difficulty, so that if there was justification for the first dose there is added justification for repetition of doses, and the longer he continues to indulge the greater the necessity for continuance. If he drinks his tea, coffee, alcohol, or smokes tobacco, because he is weak or nervous, he gets an added impulse of power to be followed by a corresponding depression of power. This necessitates a

## Environment ; or, The Laws of Vital Relation

repetition of doses, and so, growing weaker and more nervous, he requires continued increase of doses, until life becomes intolerable without his drug.

The same is true of all medicines. As alcohol permanently weakens *because* it temporarily strengthens, so opium permanently produces sleeplessness, nervousness, and pain, by temporarily relieving these ailments. Tobacco steadies the nerves only to produce unsteadiness of them, tonics call up the vitality of the nerves and muscular systems only to exhaust and weaken them. A cup of coffee will cure a headache, but invariably fastens the tendency to headache upon the patient. Or if it is taken to relieve depression of spirits, the depression becomes doubled when the habitual user of it is deprived of his indulgence. Try it. Let the habitual user of any drug—a drug used for months or years—cease its use for a few days, and he will experience in their fulness its secondary effects, only to be surprised and delighted to find how perfectly these secondary effects are neutralized by a return to its use. Coffee cures the headache which it has produced; whiskey restores the (feeling of) strength it has wasted; tobacco, the steadiness of nerve it has destroyed.

180. The same principle holds good in the use of tonics for the stomach, cholagogues for the liver, diuretics for the kidneys, purges for the bowels. Who does not know that purging produces constipation?—and, as the highest authorities tell us, the best way to avoid constipation is to avoid purging. So the best way to avoid inactivity of the kidneys is to refrain from the use of diuretics, and torpidity of liver to refrain

## Vital Science

from cholagogues. The way to have steady nerves is to use no nervines. The way to sleep soundly is to avoid all anodynes. The way to avoid excitement and irritation is to avoid all sedatives and narcotics.

But shall we not employ these agencies as temporary expedients to enable Nature to bridge over and recover her balance, lost through accident or emergency? No doubt emergencies do sometimes occur in which stimulation (and narcotization), and especially local stimulation, is serviceable, even though a future corresponding depression must be endured. But this does not justify the use of stimulants or other medicines in the belief that they will give strength or secure real relief. Nor does it follow that stimulation by poisons is at all necessary. Nature supplies a great variety of expedients to awaken increased activity, such as heat, cold, electricity, etc., which leave no ill effects save the depletion, and may be employed with a certainty and ease fully equal to those of drugs.

181. This great law of effects is a deduction from Life's Great Law, and a further development of *the law of action* and *law of power* just discussed. The living organism, being endowed with the instinct of self-preservation, must act in response to conditions imposed upon it, and expend its power in the action. It is ever alert to its own protection, ever on the defensive against threatened injury, and easily aroused to activity or power in the process of protection. This is true physiologically as well as physically, socially, or politically. Life, in whatever phase we view it, is like a buoy which floats right side up as long as the depressing influences do not overpower its buoyancy.

## Environment; or, The Laws of Vital Relation

It responds to stimulants, tonics, and all poisons in a manner analogous to the response of the animal brought to bay by its pursuers. It faces with the energy of desperation the point of attack, and often surprises its enemies by its activity, power, and ability to defend itself.

The energy of medication by poisons is the energy of defence. The first effect of any injurious, exciting, or exhausting agency is increased activity and *apparent* vigor, representing increased expenditure of power and real depletion. No one can doubt the truth of this position as long as the threatened injury is intellectually discerned, as in case of attack from highway-man or burglar. Why should it not be true of organic life, if it operates subject to the same law of self-preservation? The presence of the burglar will take from a man any feeling of lassitude or weakness he may have quite as effectively as will a dose of alcohol, quinine, or other drug. And for the same reason.

And here we have the only legitimate explanation of the fact that all medicines are more or less poisonous. No medicine can be promptly effective which is not positively morbidic. Strychnine, arsenic, calomel, belladonna, will arouse the vital instincts in a way that rhubarb, bread pills, or colored water cannot, unless, indeed, these instincts can be cheated into the belief that the rhubarb, pills, or water *are* equally dangerous. This is sometimes done by the mesmerist with marvellous results. Being certain and immediate in their effects only because the self-preservative organism is aroused to resistance by their introduction, the medicine must be something that will arouse resistance.

## Vital Science

Proper food and drink at proper times are welcomed as friends, producing no decided effects, and are, therefore, not considered as medicines. It is only that which arouses the energies to desperation that brings about prompt action.

182. We have also the explanation why one medicine affects one set of organs and another medicine another, and so on through the whole list. All medical action is due to the recognition and resistance of the medicine by an organ or set of organs. It is the duty of the liver to recognize and purge out the calomel, of the stomach to eject the emetic, of the kidneys to expel the diuretic. Each organ, having its own instincts, deals with its own class of medicines, and explains the innumerable facts of *Materia Medica*.

183. But this law, let it be noted, applies not simply to the use of medicines, but to every act, habit, indulgence, or form of environment of the individual. It is as applicable to the preservation of health as to its recovery. It applies to the well man just as truly as to the invalid. In a word, it is a universal law without an exception in the universe. For illustration we proceed to consider it in its relations to exercise or labor, the secondary effect of which should, if the law be true, be the opposite of the primary effect. What are the facts? Does not labor or exercise arouse vital activity and give the appearance of increased vigor? How often do we hear that invalids must keep up, because if they give up and go to bed they will lose their strength! This is true as a first effect, but if invalids would go to bed, rest, and be willing to be weak, they would sooner get strong and well. Who does



## Environment ; or, The Laws of Vital Relation

not know how exhilarating and apparently strengthening a journey in carriage or cars is, until after rest and reaction the patient finds himself very weak and tired? He becomes weak and tired after resting, but can there be any doubt that rest is the true means of recuperation and health? The first effect, therefore, of work, excitement, travel, is to make the invalid feel stronger, but if continued will exhaust him. The first effect of rest, on the contrary, is to make the invalid feel weak and languid, but there can be no doubt of its recuperative value.

In the care and management of horses these principles are as aptly illustrated as in human beings. A horse grows tough, hardy, and capable of work or speed by vigorous exercise,—by training for speed, by working for strength, just as does the pugilist, gymnast, or champion athlete. But the training process cannot be continued indefinitely without producing exhaustion. The horse must be turned out to grass, it may be, and the athlete must have rest in order that recuperation and vigor shall be secured. But what is the first effect of the rest? Horse and man become soft, weak, worthless for great exertion. In other words, by training, which is really hard work, both man and horse are toughened and strengthened to endure great hardships, but exhaustion follows and rest must be secured. This rest invariably weakens as a first effect, but just as certainly strengthens preparatory to the ability to resume training and hard work.

184. But these truths are even more clearly exemplified in the consideration of Sleep. Why do

## Vital Science

people sleep? For rest, recuperation, and invigoration, of course. All men agree to the fact that sleep is Nature's great restorer. But is this the first effect of sleep or its secondary effect? Work makes men bright, active, wide awake, but sleep makes them dull, stupid, unconscious, as the first effect. But as the secondary effect of work tires, stupefies, exhausts, and so must be relinquished, so sleep as a secondary effect refreshes and rejuvenates. And these facts are even more clearly emphasized by considering the effects of ball-room excitement in comparison with the languor and weakness of the next morning. Dancing must be wonderfully recuperative if we may judge by the feelings of the young woman at midnight, and sleep correspondingly exhausting if her feelings next morning are to be the criterion. (§ 203.)

The same law is illustrated in eating and drinking, in bathing and clothing. The food that is stimulating, such as tea, coffee, cocoa, spices, invariably weaken as a secondary effect corresponding to the apparent strength derived from them. But a more pointed illustration is in bathing. The bath that temporarily strengthens, as does the *cold* bath or the very hot bath, always weakens in the reaction. The lukewarm bath that temporarily relaxes, as does sleep, is as truly recuperative in character if not in degree as is sleep. Tyros in the water-cure have slain their thousands. The aged empiricist has slain his millions with drugs. The result in every case has been due to want of a knowledge of the law that explains the effect. It is written "the just shall live by faith." There is no other way to live and be right. Who trusts to appear-

## Environment ; or, The Laws of Vital Relation

ances is lost. Beware of the drink, the medicine, or the bath that makes you feel stronger and better. On the contrary, if it quiets, soothes, relaxes, thank God and take courage. Sad and weary invalid, it is rest and quiet that you need. Excitement, activity, and the taxation of violent methods, no matter who prescribes or on what pretence they are employed, will exhaust you.

185. And now we pause to inquire if it is possible that these great truths had escaped the attention of all men through all the ages. The answer is, By no means. As with Life's Great Law so with the Law of Effects, it is the child of the ages. Though never before formulated as a scientific truth, it has received acknowledgment, and been urged as a great principle, by the world's great teachers, even though mankind at large has regarded it as paradoxical and unexplainable, except in some mysterious or miraculous sense. He who "spake as never man spake" promulgated this great truth nearly nineteen hundred years ago, while for one hundred years it has been recognized in Medicine and adopted in medical practice, and has continued by force of its inherent power to gain adherents daily.

186. Hear what the Great Teacher says :

"With what measure ye mete, it shall be measured to you again : with what judgment ye judge, ye shall be judged,"—Matt. vii. 2 ; and Luke says, in the same connection, "Give, and it shall be given unto you ; good measure, pressed down, shaken together, and running over, shall men give into your bosom." And Matthew closes this part of the discourse with the

## Vital Science

enunciation of the Golden Rule, that has so long appealed to men as the perfection of good sense, and yet who have only partially understood its application. It is generally supposed to be the rule of right, when in reality it is the Golden Rule of success. The same rule is set forth by Paul in the words, "Whatsoever a man soweth that shall he also reap." Give and it shall be given you in kind. Sow and ye shall reap as ye sow. Do to men and they will do the same to you. Whosoever, therefore, appreciates these truths may decide deliberately what sort of harvest he will reap, what sort of riches he shall possess. Men must first sow the seed, and the primary effect is loss, but by and by they reap as they have sown, they gain as they had lost. In other words, first *effect*, loss; secondary *effect*, gain; for it is *effects* that we are considering, not *acts* simply.

But this is not by any means the limit of this truth to social, moral, or business life. "Whosoever will save his life shall lose it: and whosoever will lose his life for my sake shall save it." Whoso would be rich shall be poor, but whosoever hath left houses and lands for my sake and the gospel's "shall receive manifold more *in this present time*." The millions of deaths which any one can see are untimely, if our laws are true, are due to vain attempts to save life, and is perfectly illustrated in the drowning of people from accident. It is a remarkable truth in this connection that every man who is drowned, drowns himself by his useless struggles to save himself. If one falls into water, let him lie on his back, elevate his nose to the highest point, and with a slight motion of the hands

## Environment ; or, The Laws of Vital Relation

he may float for hours in still water. But if he begins to struggle, he soon exhausts himself and sinks. So it is the struggles of the patient, and the efforts of physician and friends to save him, that kill most people. In the same way, the insane desire to get rich produces more poverty in this world than any other cause. If I would have my son end his days in a poor-house or penitentiary I would say to him, "My son, get money ; honestly if you can, but get money." If I would have him rich and honored I would say, "Be a man, money or no money ;" truth and honor are everything, money is nothing. No power or influence since the world began has contributed so bountifully to the wealth of people and of nations as has Christianity when unadulterated by superstition. And Christian nations are now, as heretofore, the wealthy ones. And they are Christian in precise ratio to the extent that they live in accordance with principles instead of appearances.

"He that humbleth himself shall be exalted, and he that exalteth himself shall be abased ;" and we have already shown that he who would be strong shall soon be weak, while he who is willing to be weak shall get strong. Rest and sleep are Nature's true restoratives, but they produce their effects by relaxation and weakness as a first result. Their effects are the opposite of those of tonics and stimulants, which weaken in the reaction corresponding to the apparent strength they give. Just so, turning a horse out to grass is a grand restorative, even though it makes him so soft as to be practically worthless until he has become hardened again by exercise.



## Vital Science

And by the way, If a horse is to be recovered to health and vigor by the relaxation of rest and low diet, which is secured by cessation of grain and turning out to pasture, what shall be said of stuffing and stimulating the invalid human instead of fasting and resting him? And if, as every one agrees, men gain strength and vigor by relaxation and sleep, how can the giving of tonics be justified for the same purpose? A tonic is the exact opposite of a relaxant. If the physician recommends relaxation and rest to his patient, where is the sense of giving him a tonic at the same time? The thoughtlessness of such practice is passing comprehension. The patient needs, it may be, a tonic or perhaps a relaxant, but it is absurd to say that he needs both at once.

But we have to note the fact that another despised teacher conceived, rather dimly it is true, this great law, but with sufficient clearness to have given to the world a system of Medicine whose influence has pervaded all medical practice, and whose reputation is constantly increasing, notwithstanding its paradoxical and, to many people, absurd claims. We refer to Homœopathy and to Samuel Hahnemann, its great founder. One hundred years ago Hahnemann promulgated the "Law of Similars," so called, and made such wondrous changes in the methods of administering medicines to sick people that no power on Earth will ever succeed in expunging his name from the records of human progress. Hahnemann, however, while he discovered and applied the law to Medicine, failed to formulate it, and has not, therefore, accomplished all that could be hoped. But he has proved

## Environment ; or, The Laws of Vital Relation

to every man who has chosen honestly to investigate the subject that a medicine diluted to an inconceivable degree will produce effects when administered in accordance with his law far superior to a million times larger dose when given indifferently or in opposition to the law. (§ 227.)

187. Fourth Law ; The Law of Vital Accommodation.—Nature's Balance-Wheel.

The power of adaptability is one of the ever-present facts of living existence. Men live in every climate, are subject to all kinds of influences, and indulge in every sort of habit. They are omnivorous, bibulous, heedless, indulging daily in mineral, vegetable, and animal poisons on the supposition that they are food. It has, indeed, become proverbial that "habit is second nature," and "What's one man's meat is another man's poison." Indeed, the proof is hourly before us that one may become accustomed to almost anything short of hanging. No matter how repugnant or destructive a thing naturally is,

"We first endure, then pity, then embrace,"

provided time is given to secure the efficient operation of Nature's Balance-Wheel, whereby a violent swaying of vital activities from one extreme to the other is prevented.

Only sudden and violent changes become immediately destructive to life, even sometimes when it is a change from evil to good habits. But because a habit does not seem to be immediately destructive is no proof that it is either beneficial or uninjurious. It is the secondary effects that are the real effects. No

## Vital Science

man can decide from personal experience whether an indulgence is good or bad. To be a man of principle is the only way to be right. Society surely furnishes examples numerous enough of the effects of indulgences to render both personal experiments and plausible expedients as unwise in Medicine as in politics or business.

The bearing of this law of accommodation on several important questions is evident. Any discussion of the subjects of food, drink, the sexual relations, as also the medical treatment of the opium-eater, liquor-drinker, tobacco-user, involves this law. It is the want of knowledge in this respect which has prevented the success of many reforms which have in them the elements of great value if they can be carried to a successful issue. All changes in human habits should be made with a distinct recognition of the fact that vital accommodation will succeed provided time and opportunity are accorded. To quickly transfer the Hottentot to Greenland, or the Greenlander to South Africa; to force upon one totally unused to drugs the opium, tobacco, arsenic, or whiskey which seem normal to those who indulge in them; or even to suddenly deprive these victims of their indulgences, causes suffering, disaster, or death. Every habit, as we have already shown, makes for itself a place in the vital economy, and to suddenly cease the habit will leave a void that is dangerously uncomfortable at least. The inferences from this law of accommodation are in favor of reformation but opposed to revolution, and, being admitted, will greatly add to the popularity and consequent success of reform projects.

## Environment ; or, The Laws of Vital Relation

Every fact of life, as well as this law of accommodation, goes to prove that man is a product of evolution, not in the sense that one species is developed from another. Nor in the sense that animals are grown out of vegetables, or man from animals, except on the plan which is going on under our daily observation. The transformation of vegetable and animal material into the human organism through the processes of eating, digestion, and assimilation, is a fact of observation, but we have conclusively proved that the life or force of these is never transformed. The eating of pork does not make us hogs, even if the food is the poorest in quality. Nor will eating of berries make us birds. Nor eating of fish give us brains. It is not disputed that this law modifies vital development. It is believed to be a fact that the habits of parents become constitutional tendencies in children ; but how far this process of development may be carried we are not prepared to say. It is the thought of this work that heredity chiefly determines character, and while Environment may modify for the time, we are not sure that the modification can ever be permanently fixed.

## CHAPTER XI.

### THE MODUS OF MEDICINES ; OR, DO THEY STRENGTHEN YOU ?

“All those who have acquainted themselves, in recent times, with what is known of the structure and chemical composition of the tissues, the laws of nutrition, and the pathological changes which occur in organs during disease, must feel astonished at the unfounded assumptions, want of evidence, and even unreasonableness which characterize writings on the action of medicines.”—“Practice of Medicine,” p. 332, by PROFESSOR JOHN HUGHES BENNETT, University of Edinburgh.

188. WE use the term medicine in the larger sense to include every substance or agency that is, or may be, employed to improve health or cure disease. Sanatory treatment, such as baths, massage, electricity, not less than exercise, rest, sleep, etc., are subject to the same principles as are drugs, and the effects are to be determined by their proper law,—the Law of Effects. (§ 177.) Not less than one hundred thousand physicians in this country are daily, and even hourly, watching the effects of their medicines upon the human organism, as men have been doing for centuries ; but as no law has been formulated, even though a few have recognized its existence, there is unlimited conflict of opinion as to what these effects are. Patients recover or die under their influence, and no one seems to be able to say why some die and others recover. How can they as long as there is no rule for determining re-



## The Modus of Medicines

sults, no yard-stick with which to measure, no formula from which to calculate, no postulate from which to reason? One man's speculations are as good as another's as long as there is no rule to correct observations or to determine who is right.

189. More than two centuries have passed since the great Newton demonstrated, in one respect at least, that the thing we see is not the thing that really is. On the contrary, the apparent is proved to be the exact opposite of the real. The Sun does not revolve around the Earth, but the Earth around the Sun. That a corresponding fact is universally true in the living world is not generally known. The priesthood of 1632 which brought Galileo to his knees, was not more superstitious regarding astronomical phenomena than are the wise men of to-day with regard to the effects of drugs, or of anything else upon the human organism. Life's Great Law is the analogue of Gravitation, and does for the living world just what Gravitation does for the physical world. The realities of life are by it proved to be the opposite of the apparent. The Law of Action (§ 170), we found, shows that it is the living organism that acts upon the medicine, and not the medicine that acts upon the organism, as is generally believed. And we learn through the Law of Power (§ 175) that it is the organism, not the medicine, that supplies all the power that is exhibited in the action; the medicine, baths, or other agencies being simply the *occasions* or *conditions* that call forth the power. These agencies, therefore, take away what they seem to give (power) and give what they seem to take away (disease). No matter what the agency,

## Vital Science

the law is invariable; what seems to give strength exhausts it, and what seems to make one weak recuperates strength. Sleep is, perhaps, the best illustration. No one doubts that it is Nature's great recuperative process. But in order to this recuperation the patient becomes helpless even to unconsciousness. Work, and especially such work as involves the greatest possible activity of body and mind, is the great process of exhaustion. And no one can doubt that it exhausts because of the activity and vigor it induces. Lazy, indifferent activity and work exhaust slowly. The exhaustion corresponds to the activity. "It is the pace that kills," as the horsemen say. Why, then, does not every agency which correspondingly quickens vital processes tend also to exhaustion? And why do not such processes as induce inactivity, rest, relaxation, and sleep recuperate living beings? By what process of reasoning may it be asserted that a stimulant or tonic strengthens any man? No matter whether the stimulant be a cold morning plunge or a hot evening sweat, whether it be whiskey, brandy, quinine or calomel, strychnine or arsenic, how can it give what it does not possess? But whoever thought of asking such a question?

From these and a multitude of similar illustrations and proofs (§§ 178, 179, 183, 184) we have been enabled to establish a formula of

THE LAW OF EFFECTS.—The secondary (and real) effect of any agency, habit, or indulgence upon the human organism is the exactly contrary or opposite of the primary and apparent effect.

We have shown also that this is a universal law,

## The Modus of Medicines

without an exception in any department of life. Indeed, we think it is, at least, closely analogous to the well-known law of physical science that "action and reaction are equal and opposite." We have also cited the paradoxes of the Christian Scriptures as proof not only of the truth of the law but of its wide range of applicability. (§§ 185, 186.)

190. The facts of medical practice further confirm this law. Sixty years ago the almost invariable process of treating invalids consisted of bleeding and purging. No one disputes that the great Washington fell a victim to this treatment. But the results were more general than particular. Blood and bowel diseases increased to an alarming degree. Dysenteries, fluxes, choleras, were only more prevalent than blood-purifiers which never purified. Alarmed by the results, thoughtful physicians began to distrust the practice, and soon other theories were advocated. The theory which has survived many others which have lived and died is that diseases are to be cured and life saved by sustaining the patient's strength. Disease is generally looked upon as a conflict between the patient's vitality and something destructive from without. If the vitality can be sustained so that the patient does not become exhausted by the conflict, his powers will likely win the battle and health will follow.

The theory, in a sense, is right. To sustain the patient's strength through the trying ordeal is the central thought of all successful practice. But how is this sought to be achieved? By the administration of agencies known to be destructive to Life. "Our most violent poisons are our best remedies," say the

## Vital Science

authorities. They arouse the vital energies as nothing else can, and the physician is deluded into the belief that they are giving the patient strength, when, as we have seen, they are rapidly exhausting his strength.

191. Let us drop the theories here and proceed to an investigation of the facts. Was there ever a time in the world's history when debilities, nervousness, infirmities, were so common among men, and especially women, as now? If blood and bowel diseases increased with blood and bowel treatment; if the Law of Effects is really a true law, why should not weakness increase with strengthening treatment, nervous diseases with the use of nervines, and debilities with the use of tonics? For example: The patient is feeble in mind and body, as the pulse clearly shows, and friends and even physicians are perhaps alarmed at the prospects. Or the patient is undergoing a serious surgical operation, or he is very low because of the operation, or from an exhausting fever. The doctor orders brandy every two hours. The pulse becomes fuller, stronger, steadier, the mind recovers tone, the patient feels better, can eat more, talk more, think more. Who will say that the brandy didn't give him strength?

The laborer or business man as he wends his way homeward from the day's toil, tired, wearied, exhausted, is invited from many a window and door to take something to relieve his weariness and give him comfort. No one disputes that the brandy, whiskey, ale, or beer will do it. Then why should he not take it?

Or he can go into the drug-shop and get relief in a similar way, only the expense is a little greater. Why not go to the druggist?

## The Modus of Medicines

If there is anything that man wants in this world, it is the ability to work—with his brains. Comparatively speaking, gold is nothing, silver worthless, bonds a nuisance; but brains everything. We would direct our pen, our pencil; we would make our bargains, write our legal papers, direct our business with brains. And if we had enough of them the wealth of the world would soon lie at our feet.

By brains we mean not quantity, but quality; and especially the power of thought which is supposed to reside in brains. We want brain-power. So we want more power in muscles, nerves, stomach, liver, bowels, lungs, heart, everywhere. We are like all the others, anxiously longing for more power to conquer the worlds rather than for more worlds to conquer.

But the saloon-keeper offers us power in all departments of our being at five cents a glass; while the druggist offers it at fifty cents a bottle, or twenty-five cents a box. Why not accept the offers of one or the other?

192. THE ONLY REASONABLE QUESTION IS, Will they strengthen us? A few cents is nothing if the nickel, silver, or gold can bring us what we so much need.

No one disputes a truth incontrovertible,—viz., that wine, beer, whiskey, brandy, arsenic, strychnine, quinine, tea, coffee, or any other tonic or stimulant, local or general, does, for a time, increase the power of work in brain or muscle, in heart or lungs, stomach or bowels, as the case may be. It is equally an incontrovertible principle of science that work is performed only by the use and expenditure of power. Increased brain-work means the use of increased brain-power;



## Vital Science

muscle-work, use of muscle-power ; lung-work, lung-power ; and so of every organ in the body, increased work means increased use of power.

The brandy, whiskey, arsenic, quinine,—the tonic, stimulant, purgative, diuretic, all increase the amount of work done, and correspondingly the amount of power expended. Something cannot come from nothing. The question before us is, Whence came the increased power to do the increased work? Did it come from the tonic or stimulant, or from the living organism? If it came from the drug,—if we can buy brain-power, breathing-power, heart-power, nerve- or muscle-power, at five cents a glass or one dollar a bottle, we are incontinent fools if we fail to do it. But if we supply from our own Life the increased power which we may sorely need in the future in order to keep us alive, then it were well for us to stop and consider if we want the drug. Won't it be wiser to refrain from using the power, and by saving it, live longer, rather than yield it up unnecessarily and die?

193. WHENCE COMES THE INCREASED POWER? Science yields an absolutely certain means of determining the immediate source whence any power comes,—viz., the gain exhibited in the work done corresponds precisely to power lost at its source. We may add to this loss by friction, but gain beyond the source of gain is impossible. Our question, therefore, resolves itself into another question, Which was it that lost the power exhibited in the increased work, the drug or the organism? Science shows conclusively that when any material yields power to do work the material is correspondingly reduced in quantity, deteriorated in

## The Modus of Medicines

quality, or changed to other form or condition. The coal that yields heat to warm or produce steam to do work, is deteriorated or destroyed in precise ratio to the heat given or work done, and is a perfect illustration of a great principle of Science, that when power is used it comes from the total or partial destruction or change of the substance that yields the power. To answer the question as to whether it was the organism or the drug that yielded the power to do the increased work is simply to inquire as to which suffered deterioration by the operation.

194. The deterioration of the drunkard's organism is evident to every observer, and many people can detect it even in the moderate drinker, but we are not able to observe that there is deterioration and consequent loss of power from the use of a single dose or from a score of them. In these cases we can rely only upon inference. The use of the stimulant has occasioned increased work, involving correspondingly increased expenditure, necessitating deterioration of the substance that yielded the power. Now, as all observation shows that the organism is always deteriorated by the free use of all drugs that apparently supply power, and in close ratio to the quantity of the drug used, as witness the arsenic- or opium-eater, whiskey-drinker, cocaine, or chloral user, we are warranted in inferring that it is the organism, and only the organism, that supplies the power for the increased work, and consequently suffers the deterioration, even when the drug is used in doses too small to produce obvious effects. This is the inference from the fact that every machine or organism performs its functions

## Vital Science

by the use of its own instead of alien forces, as steam through the steam-engine, electricity through the electric motor, etc. It is the necessary inference, also, from any true doctrine of Evolution which shows that work, development, product, is the outworking of internal forces, and not the inworking of those which are external. (§§ 50, 74.) It is the same conclusion from a study of Vital Force ; its Nature and Source. (§§ 114, 115, 124.) It is equally the just inference from the observation of the effects of drugs when used with sufficient freedom to make them observable. Why not accept all these facts as complete proof that it is the organism that supplies the power for the increased function, and that the drug only excites or irritates the organism to increased activity? (§§ 214, 215.) Against this conclusion no argument is offered except the apparent increase of function and consequent expenditure of power, which is impulsively credited to the drug without any investigation as to how the drug yields the power. We have here another excellent illustration of confounding the *occasion* with the *cause*. No one can doubt that alcohol, arsenic, quinine, *occasions* increased vital activity and consequent expenditure of power, but every argument, as we have seen, goes to prove that the organism is the *cause* or source of the power. (§§ 72, 73, 74.) No one will surely claim that a fraction of a grain of morphine, strychnine, arsenic, let alone a drop of hydrocyanic acid, incloses the power to produce the wondrous effects observable. It is admitted that they are not food, but produce their effects in some mysterious way not susceptible of explanation.

## The Modus of Medicines

195. Herschel's rules already noticed,—viz., “Invariable connection;” “Invariable negation of effect with absence of cause;” “Increase or diminution of effect with increased or diminished intensity of cause;” apply here with remarkable force. If drugs are the real cause,—that is, if they communicate the power which performs vital functions and produces vital vigor,—there will be “invariable connection” between the drug and the function. There will be no function without the drug; and there will be an increase or diminution of function corresponding to any increase or diminution of the drug. The absurdity of such a claim is evident; it rests only on superstition sustained by indifference. But now let us apply these rules to Life or Vital Force, and inquire if these are always connected with vital function. All observation shows that there is “invariable connection” between Vital Force and vital function; that there is “invariable negation of effect with absence of cause;” and that there is “increase or diminution of effect with increased or diminished intensity of cause.” In other words, the connection between Vital Force and vital function in every stage or phase of operation answers to the requirements of Science as *cause* and *effect*; while there is proved to be no relation as *cause* and *effect* between drugs and vital function.

196. A further important test of the real effect of any drug, alcohol included, is to use it continuously in the recommended dose for months or weeks and then to suddenly and permanently discontinue its use. This is, we believe, the most important test of the effect of any drug. No one believes that the drug is

## Vital Science

digested or assimilated so as to yield from its own substance power to the organism, or power to do work of any kind. Nevertheless, it increases the amount of work done, and, consequently, power expended; which power, coming only from the vital system, if it does not come from the drug, reduces the amount that is left therein. Thus the organism is not only weakened by the drug, but when the drug is suddenly withdrawn, *experiences* its weakness most keenly. Tea, coffee, or any other stimulant or tonic comes under the same rules, and its true effects are to be learned, *not by their use simply, but by their sudden disuse* after an indulgence continued long enough to have become a habit.

The marvellous power of the drink and drug habit is thus explained. Once resort to the use of alcohol, opium, or other drug for strength, relief, or comfort, and the necessity for repetition constantly increases. Because it produces or aggravates the conditions that it temporarily relieves, the indulgence never satisfies. It produces the disease it seems to cure, and depletes the strength it seems to give, so that the longer one uses it the more he needs it. And all this because it is the organism that supplies the power of action and work, the drug only calling forth and expending the power which it seems to yield.

197. Once more we arrive at the conclusion so clearly demonstrated in Chapter VIII., that whatever *increases vital energy* correspondingly *reduces Vital Force*. Whether it be labor, business, danger, responsibility, tonic, stimulant, ball-room excitement, no matter what the agency that causes vital action, it



## The Modus of Medicines

thereby expends the vital power. The vital organism, not less than external nature, is a reservoir of force (§§ 140, 141), which constitutes the only basis of supply for every form of vital activity. Science demonstrates, that *Energy is force in motion*, doing work and, therefore, expending power. (§§ 99, 100.) Mr. Spencer is right in using the words Motion and Energy interchangeably (§ 93), and scientists are wrong when they confound *Force* with *Energy*. (§§ 88, 89.) Alcohol increases, beyond a doubt, the vital energies and reduces the Vital Force. Calomel increases the energies and reduces the force of the liver and bowels. Strychnine does the same for the motor system, and digitalis for the heart. But so does danger, as in the burning building. So does the highwayman, the ball-room, the cold bath, or any other agencies which give the appearance of strength. In a word, whatever expends Vital Force increases vital energy, because Energy is Force in process of expenditure. (§§ 100, 146.)

198. But it is asserted that the tonic or stimulant increases the consumption of food, and, therefore, the development of strength. Of course it does. But so does labor, excitement, responsibility. Whatever adds to a man's taxations will ordinarily increase the consumption of food and the production of energy. But what advantage has been gained by adding to a man's taxations in order to make him eat more? We have conclusively shown that Vital Force is not transformed from food any more than from stimulants. (§ 117.) Food and stimulants develop vital energies; but Vital Force is a fact of inheritance which food, drink, medicines, call forth and expend in the form of vital energy.

## Vital Science

(§ 141.) The digestion and assimilation of food is itself a taxation, imposing increased burdens upon stomach, liver, lungs, heart, kidneys, which are already in most cases of invalidism overworked. How will increasing their burdens relieve the patient? What he needs is not increased work, but more rest; not added taxations, but reduced labor.

199. Who can doubt that the length of a man's life, other things being equal, depends upon the power which he really possesses,—upon what Science calls Intrinsic Force, and not upon what is manifested through the excitement of drugs or the doing of work? Who can doubt that a man's possessions depend upon what he saves, and not upon what he spends,—upon the power or wealth which he still has for the performance of work, and not upon the power or wealth which has been called forth by any means or for any purpose? (§ 142.) “The mill cannot grind with the water that has passed,” nor can life be maintained on the power that has already been used. It is seldom that a man is so sick or weak that he cannot live now, and perhaps for days or weeks. The physician is called not for present need, but to secure life and health for the days to come. The patient can generally bear the present. What he wants is power for to-morrow or later. The physician's work should be not present increase of power at the expense of future weakness, but rather future increase of power through rest and saving of power. He should not give tonics and stimulants to get temporary activity and vigor, because the patient can live without these, but he should manfully withhold the stimulant and secure

## The Modus of Medicines

inactivity, quiet, sleep, and rest, no matter how impatient the sick one or his friends may be to see apparent improvement. We should, in a word, treat the sick man on the same plan that we would treat the debauchee,—urge him to restrain his craving for his indulgence, whether this be business or pleasure, food, drink, or medicine, whereby apparent strength and health is secured, and instead, wait patiently for results. The patient won't die to-day, let us try to save his strength and vigor for to-morrow. Children and fools live by appearances, which means always to be wrong. The just or righteous one lives by faith, the only way that men can live and be right.

200. Here, then, we have the same delusion which we have reached in other chapters through other forms of argument. (§ 141.) In a matter concerning one's own continued life, we discover that the real facts are the exact opposite of the apparent and generally trusted ones. We are not now controverting the theory that the sun revolves around the Earth, but an exactly parallel one that stimulants and tonics, no matter what kind, give strength to the living organism. We assert and prove by incontrovertible facts and logic that all those substances, agencies, medicines, that are so generally relied upon to save life and restore health, do, on the contrary, destroy health and hasten death. We uncover the parent stem from which the alcoholic delusion is but an offshoot, and not the chief one. We are not inveighing against either drugs or doctors, hotel- or saloon-keepers, but we are seeking to disclose a principle of universal application. That we have succeeded may be gleaned

## Vital Science

from the fact that we have been compelled to reach the same conclusion through several different forms of presentation and argument. If alcohol makes a man seem and feel stronger by inducing increased vigor of his functions while it yields no force to sustain these functions, it is of necessity exhausting him. If quinine, arsenic, or other drug does the same thing, we must chronicle the same result. If digitalis increases the vigor of the heart's beats without yielding power to the heart from its own substance, as we are sure no intelligent physician believes, it is exhausting the heart, and has more to do with the numerous deaths from heart-failure than is generally believed. In a word, it being proved that the vital energies are but an active development of the Vital Force, it follows that whatever increases those energies correspondingly reduces the force on which they depend. (§ 100.)

201. Stimulants and tonics are not the only agents employed to increase vital energies. The essential discovery of the old German peasant, Preissnitz, consisted in the use of baths to produce the same effects upon the human organism that physicians had long been engaged in securing by the use of deadly poisons. Preissnitz had his stimulant, tonic, sedative, diaphoretic, diuretic, derivative baths, which enabled him to rival the schools. There is but one respect in which he perfectly agreed with them,—viz., in the violence of his methods. It would require a pretty large dose of brandy, whiskey, quinine, or arsenic to produce more exciting effects upon the sensitive human organism than to call a man out of a warm bed in the early morning and make him stand under a stream of

## The Modus of Medicines

the coldest water, falling upon his spinal column, with a pressure of thirty pounds to the square inch, or to be wrapped in a cold wet sheet for an hour, or even to walk barefoot in the morning dew, and to repeat such processes daily or several times a day when possible. If these things do not wake up the sleeping powers, we do not know what would. "React or die" is the authoritative command to the vital instincts, and where the love of life is strong, reaction does often take place, and apparently good results are obtained. But what of the feeble ones who have little power of reaction? They die, of course, but no one suspects that a Water-Cure doctor could have done them any harm. Or they live, and become ever-recurring patrons of the wonderful Water-Cure, making yearly pilgrimages to their chosen Mecca.

202. The violence of the Water-Cure has largely subsided, but baths and bathing continue to be an important and valuable appliance of sanatory treatment. How shall they be, and how are they, administered? In accordance with the judgment of the physician, of course. But how does the physician form his judgment? In accordance with the apparent effects. If the bath seems to make the patient feel better, seem stronger, both physician and patient are likely to think it is suited to the case. The patient is weak, and it is imagined that he needs a tonic. His liver, bowels, brain, are inactive, dull; give him a bath to wake up his energies, and it is supposed that he is being cured. And so the toning and stimulating processes continue for weeks or months, *the patient always getting well, but never gets well.*



## Vital Science

The illustrations of these truths are so prevalent that it would be a waste of time and space to undertake any enumeration. But there is a thought in this connection worthy of consideration,—viz., that the exhaustion of Vital Force through its development into vital energy by the use of tonic and stimulating appliances, of whatever character, is the legitimate cause of most, if not all, of the relapses to which patients under treatment are liable. What are called, in medicine, *sequelæ* it is believed are equally the product of erroneous measures; for experience shows that they do not occur under rational methods.

Vital Force is the foundation of all health, while vital energy, as we have seen, is this same force in process of doing work, and, therefore, in process of being transferred to the work, and consequently in process of expenditure; so that it follows that whatever increases the energies reduces the force and tends to undermine the constitution. The administration of tonics and stimulants, whether to special organs of invalids or to the general system, is perfectly analogous to building up the superstructure by the use of material dug from the foundation. To restore health by undermining health is nineteenth century medical science; let the twentieth century develop new measures. What is wanted is not so much new processes as new principles, not new men but new thoughts.

Sleep is the great representative process of recuperation; and all successful medical treatment must act as sleep does. Activity and excitement, on the contrary, are the great representatives of exhaustion and final

## The Modus of Medicines

death, and all treatment which excites, stimulates, tones, and apparently strengthens, is destructive and delusive to the last degree. Let us illustrate :

203. A young lady with not overmuch strength attends the village ball. Listening to the inspiring music, she dances and dances into the small hours of the morning. It is all so delightful she wishes it would never end. Her eyes grow bright, her complexion brilliant; and she feels so well that, if we knew no better, we would be constrained to own that midnight revelry is wonderfully recuperative. But the music finally ceases, and she returns to her home, and to bed and sleep. Next morning she is *so* tired and listless, with pale face, eyes dull, temper irritable, and head aching. Surely sleep is the thing to be avoided and revelry the thing to be courted. And has not all human experience justified the hoary-headed father and mother in urging the recuperative atmosphere of the ball-room, and warning sons and daughters against the baleful influences of sleep? And yet in spite of these facts of experience, corroborated by the testimony of millions, we dare assert that sleep is recuperative and revelry exhausting, and that any process that will truly and permanently restore invalids to health must produce the results of sleep and avoid the results of revelry.

Further examples of the truth of this thought ought not to be necessary. We proceed to inquire, What are the immediate results of sleep, and how does it produce recuperation? The first effect is relaxation, which is another name for apparent weakness, and is the very opposite of the effect of the tonic. Yet

## Vital Science

who is it that says to the tired business man, "Quit business; get away for a season of relaxation, and I will give you a tonic"? Shall we call it superlative thoughtlessness, transcendent ignorance, or arrant quackery? Sleep represents the greatest possible inactivity and the most perfect rest, and simulates death as no other condition of human life does, but in the very fact of simulating death it is the great preserver of life. Eyes refuse to see, ears to hear, touch, taste, and smell have departed, muscles and nerves relax, and brain rests. Can there be any doubt that the season of recuperation is the season of inactivity? And how better can we describe the folly of tonic or stimulant than by comparing its use to the mother who pinches her sleeping babe to find out if it is alive. How far along in the process of human development, we wonder, was it when this brilliant plan of keeping babies alive was abandoned?

Sleep, therefore, is the bedridden condition, the condition of weakness which represents the saving of power,—the state of complete inactivity of all the functions that it is possible to relinquish, and the reduced activity of all such functions as must continue. Why all this cessation of function, this reduced action of heart, lungs, brain, nerves, muscles, if it is not that they may rest and recuperate their energies, and get ready for future work? In the administration of treatment, therefore, in which health, strength, and vigor shall be permanently restored, shall we employ measures to bring about conditions similar to those that belong to sleep or the opposite? Shall we secure inactivity or produce excitement? Shall we relax or

## The Modus of Medicines

tone? Quiet or stimulate? If we would, in a word, indicate the ideal condition of the patient who is undergoing recuperation, we would say, Let us have him, *sans* eyes, *sans* ears, *sans* mouth, *sans* nose, *sans* nerves, *sans* muscles, *sans* everything except the breath of life,—let us have him asleep.

## CHAPTER XII.

### THE NATURE OF DISEASE.

“My people are destroyed for lack of knowledge.”—HOSEA.

204. How may one deal successfully with a thing whose nature he does not understand? More disastrous still would be the result if we mistook the wolf for a lamb, our friend for a burglar, a stick of dynamite for a block of wood. There is every reason to fear that just such mistakes are being made every day on the subjects of health and disease. We would carefully learn to distinguish between them and their causes that we may avoid the one and cultivate the other. More particularly we would discover the exact nature of disease in order that we may successfully treat it.

205. It cannot be doubted, we are sure, that disease is a *process* as well as a *product* of Nature; and what the process is, in order that we may control (§ 2) or, at least, predict the result, must ever be a subject of great importance. Without further preliminary we proceed to describe the processes of disease as we trace them in the analogies of Nature, and shall hope to indicate a consistent solution of its great problems.

Nature as a whole, we have seen (§ 6), is made up of phenomena, forces, and laws. The human constitution, we have also seen (§ 130), is perfectly analogous



## The Nature of Disease

to Nature in this respect. We naturally conclude that disease, which is so important a part of both, is equally constituted of phenomena, forces, and laws. The phenomena, usually called symptoms, are the things produced, while Force is the power that does the work, and Law is the directing agency,—a trinity which cannot be separated. We cannot have the symptoms of disease without the forces that produce them, and force could do nothing unless directed. We proceed to the inquiry, What are the forces of disease? And what are its laws?

206. It is a truth which we have already established (§§ 84, 92) that Nature, the unit, proceeds to the many through three branches or fundamental departments, the chemical, the mechanical, and the vital, as declared by Sir John Herschel and corroborated by the Genesis. Each of these departments is presided over by its own great force, under direction of the one invariable law, which law, sustained by its force, produces all the effects or phenomena of its department. It is, indeed, a remarkable fact that the very opposite results may, and often do, follow the operations of the same law, sustained by the same force, in answer to opposite conditions. Gravitation makes a man to float in water or drown, and whether he sinks or swims depends upon himself. So Gravity floats the balloon or brings it to the earth, but man decides which he will have. And he always gets what he wants if he supplies the conditions. Chemical Affinity makes dynamite or explodes it, just as man provides. Just so the Vital Principle, made up of Vital Force under control of Life's Great Law, produces pleasure or pain, health or

## Vital Science

disease, just as the conditions warrant. If one would be healthy, let him live healthfully. If he prefers to be sick, he can be accommodated. In each department of natural existence all its processes are under control of its one primal law, sustained by its own individual force, the results corresponding to the infinite variety of conditions existing. The force which performs all vital functions, whether in health or disease, is called Vital Force. The Law which directs and controls this Vital Force is Self-Preservation. (§ 150.) And whether the result shall be disease or health depends upon whether the conditions are healthful or unhealthful, subject, however, to the controlling influence of Nature's Balance-Wheel,—the Law of Vital Accommodation. (§ 187.) There is no power that can do the work of the vital organism but the power of the organism. The power that made it is the power that maintains it in operation, replaces its wastes, restores its lesions,—does whatever is done. Disease, being internal to the organism, and occurring only in living things, proves that it is the product of the vital forces. The fact that vital power works with certainty to the production of any form of operation, just as we supply the conditions for it, is further proof. A man can have anything he wants in this connection up to the full limit of his inheritance, provided he is able to secure or supply the conditions. He can, in general terms, be sick or well as he chooses; and we affirm it as a sober, scientific fact that it is much easier to be well than sick. All Nature is pledged to the recovery and maintenance of health; disease represents Nature weeping over the sins and follies of her erring children.

## The Nature of Disease

207. The connection between health and disease is incidentally set forth by the late Professor George B. Wood, of the University of Pennsylvania, at the same time that he admits entire ignorance of the nature of disease. He says, "Practice of Medicine,"—

"We have not yet learned the essential nature of the healthy actions, and cannot, therefore, understand their derangements."

A knowledge of the nature of disease undoubtedly presupposes a knowledge of the healthy actions. The law of life is the law of health and the law of disease; the forces of the one are the forces of the other. Great progress has been made in our knowledge of the initial processes of life since Dr. Wood wrote, and we are in much better shape to discover the nature and deduce the proper treatment for disease than he could be. Life, we have learned, is an invisible principle of existence, which coming only from preceding life, and endowed with the instinct of self-preservation, proceeds to build for itself a house in which to dwell and a machinery through which to work. In accordance with these objects it seizes upon and appropriates to its use such material as is suitable. In its early stages, while its powers are only slightly developed, the material for its use must be plastic, easily assimilable, and exactly suited to its wants. Such material is usually enclosed within a shell, in which it may be easily preserved, and from which it may be withdrawn as necessity requires. This organic matter is not thus plastic, sensitive, and easily changed in order that heat, light, electricity, etc., may generate in it the living principle, as some teach, but in order that the living principle,

## Vital Science

which has been communicated from preceding life, may be able to easily organize it into an organism.

The visible protoplasm, made up of albumen, etc., is the material (§ 156), but Life, the invisible principle, is the workman which organizes for itself an organism to suit the conceived plan. (§ 154.) All work, natural, human, or divine, begins in conception,—the conception of a plan,—proceeds by evolution, and illustrates the use and expenditure of power in the performance of the work. The human organism is first conceived, then grows, and is finally born and developed in accordance with the conceived plan. The worker, the material used, and the work done are distinct from each other, as we have seen. (§ 68.) The power, the process, and the result will never be confounded in any true system. Vitality or Vital Force is the power, disease or health is the process, and recovery or death is the result. A knowledge of disease, therefore, involves a knowledge of the vital processes.

208. Quain's "Dictionary of Medicine" (page 382) is right in teaching that disease begins where health begins,—where life begins,—in protoplasm, which constitutes the active agent of production, growth, and repair. It says,—

"We are, therefore, not hoping and believing too much when we express our conviction that the time is not remote when we shall be able to trace those early and minute changes which constitute disease, and the causes which give them origin, and that we shall be able to define in a more philosophical form what disease really is."

We are of the opinion that the processes of disease are to be traced logically, not visibly. The microscope has yielded to us valuable information of the processes

## The Nature of Disease

of life and growth, but disease is not equally observable. On the contrary, its processes can be reached only through reason, as are the corresponding processes of Astronomy and Chemistry. Our knowledge of the composition of an acid, alkali, or other substance does not depend upon the microscope. The facts from which to *reason* on the subject of disease are already sufficiently abundant, and so we proceed to *deduce* the nature of disease from the facts of physiology.

The first important fact to be noted is that all vital operations, of which disease is one, begin where life begins, in protoplasm, as the result of an invisible potency within it. The individual worker who builds, regulates, and repairs the organism was first declared to be the cell (the Cellular Theory); but soon it was discovered that the cell itself is filled with matter called protoplasm or bioplasm. But inasmuch as this matter may be alive or dead, having been killed, and if dead performs no functions, it becomes evident that the work of building, organizing, or repairing is not performed by protoplasmic material, but by a living principle which, though invisible (all causes are invisible, § 54), evidently resides in the protoplasm, and performs its work. It is Life, an invisible principle of existence, which, appearing first in protoplasm, proceeds to build, with marvellous skill, nerve, muscle, and bone; and, operating with an intelligence peculiarly its own (§ 157), it carries forward all vital functions and regulates all vital processes, adjusting with utmost skill the organism to its environment. It is Life which adjusts itself to the Environment, whenever



## Vital Science

it does not change the Environment. It is Life which acts, and Environment which is acted upon. Life is the subject, and Environment is the object.

209. Another important fact which leads up to a consideration of the true nature of disease is that the use of any tools, machinery, or organs wears them, and in order to continued use repairs are frequently necessary. The living organism is hourly in process of repair as well as wear. Waste and repair are facts of Life which are always being carried forward in the animal economy, at least. And this is a fact of physiology,—a process of health. But extraordinary processes of repair may also be necessary at times, and these are often painful, laborious, and exhaustive. They cannot be called healthful. They are pathological processes, and, therefore, diseases. They are abnormal in answer to abnormal conditions, but they are curative all the same. In the emergencies of Life, if a wound is suffered, Nature at once begins a process of repair. At first it is naturally a process of resistance to further injury. It is called irritation, and soon becomes inflammation, which is the immediate process of healing. Then follows, in many cases, a process of purification. The parts are liquefied in order to expulsion; and this is called suppuration. By and by granulation appears; and this is the ultimate process of healing. The process is a diseased process, every step in it having an object in view. The symptoms are the symptoms of disease. The heat is increased because of increased activity in the nutritive processes. There is abnormal redness for the same reason that there is increase of heat. And there is swelling, due

## The Nature of Disease

to the increase of nutritive material in the parts. Pain also is usually present because of pressure on sensitive nerves or from excessive labor. But the process is a process of healing, which is properly called inflammation, a real disease.

We are of opinion that no person acquainted with these facts, who will stop to consider their bearing, will dispute the curative *efforts*, if not curative *effects*, of disease in such cases. Why not in all other cases? Because the other cases do not always get well. But neither do all wounds get well. Just as Gravitation may, while attracting matter to the Earth, fly a kite or float a balloon; may carry a railroad train over the bridge, or, under changed conditions, dump it into the river; so Life's Great Law may cure or kill, according as the conditions are for recovery or death. But the attempt is always to cure. Self-preservation is the first law of Life. And cure will be effected in every case if the power is sufficient and the conditions are favorable.

210. One important condition for cure in these cases is cleanliness, which is often secured by the use of salves and plasters. In severe cases rest is also important, and especially rest of the organs of excretion, in order that they may be prepared for the extra labors soon to be imposed upon them. Suppuration, we have said, is a cleansing process. It seldom occurs except where contact with the external world has introduced foul matters which must be eliminated. A broken bone, for instance, if there is no external wound, seldom suppurates. Never does so unless the blood is very foul and itself introduces impurities into

## Vital Science

the wound. Nor does fever, any more than inflammation, ever proceed to destructive processes except because of exceeding foulness within. Disease-germs are among the later discoveries of modern medicine. And no one can dispute the reality of their existence, or that they are very serious affairs because of their ability to reproduce themselves. They are living things, which multiply indefinitely as long as food, moisture, and heat are abundant. But they cannot live on pure blood, as has been frequently proved. They are natural scavengers, whose business it is to eat up foulness. The man who breathes foul air, drinks impure drinks, eats excessively, perhaps, of impure foods, or works to exhaustion, so that the natural processes of purification cannot be carried out, is bargaining for a visitation of germs to clean house for him. If they come, whether in the form of diphtheria, typhoid, la grippe, small-pox, or any other disease, give him abundance of pure air, and see that he breathes it; give him abundance of pure water, of comfortable temperature, and see that he uses it inside and out. Stop feeding him, so that liver, lungs, kidneys, bowels, skin, will be free to purify the blood already made (this is much better than bleeding), and let him rest. Inherent vitality, we have seen (§ 134), alone heals, repairs, cures; and no amount of feeding can add to this curative power. Food is the condition for its expression, and should be supplied whenever there is a natural demand for it; but to *force* it upon a helpless stomach is a piece of inexcusable charlatanry.

211. The sources of impurity of blood in any organism are always more or less numerous. Besides

## The Nature of Disease

the liability which is upon all men to take in poisonous matters from without, there is even greater liability to generate poisons within. It is the chief work of five of the most important organs of the body to carry on cleansing processes. The lungs exhale carbon dioxide, the liver secretes bile, the kidneys excrete urea, etc., and these organs may easily become overworked and fail to perform their functions vigorously, thereby causing accumulations which poison the centres of life and afford a delightful repast for disease-germs.

But it is believed that the bowels in most people are the chief sources of impure blood. Not only may these organs fail to carry out the foul matters lodged in them, but they frequently reabsorb them. How frequently this occurs few people imagine! A daily movement of the bowels is no certain evidence that the bowels are doing their duty. A few years ago we treated a patient suffering from ulceration of the soft palate extending to the roof of the mouth, which had defied all medical treatment for months, and though he had a regular daily movement we decided that his bowels needed attention. By a systematic course of kneadings, rubbings, and percussions the bowels were rendered very active, and his ulceration ceased at once, and never gave him trouble afterwards. A man's bowels are sufficiently constipated to cause him great trouble if the fecal matters require three days or a week to pass through, even though he has a movement daily. Obstruction of these great sewers of human life is the rule and not the exception, and men wonder why they have typhoid fever, diph-

## Vital Science

theria, or "malaria" (as they call it). The wonder is that they have avoided the consequences of their own carelessness so long. If they are at length overtaken in their folly, the true treatment consists in a process of purification. In all cases the bowels should be thoroughly and repeatedly emptied by large warm water enemata. This is especially important in all cases of typhoid.

Rest in bed is next in importance. But even more important than either is as complete rest of all the vital organs as is possible to secure. This is obtained by ceasing to eat for days, or until appetite urges new supplies. The work of liver, lungs, kidneys, heart, etc., is measured precisely by the amount of food one eats. To cease the use of food for a time affords the most complete rest to the vital organs, or permits them to carry forward their work very perfectly, so that purity of blood soon takes the place of the previous impurity, and disease-germs are thus starved out. Will the patient starve? By no means. Food, we have seen (§ 135), does not supply one iota of healing power. It supplies an element of physical power for the doing of physical work, but we send the patient to bed to avoid physical work, and many patients will thrive for days or weeks on the material already stored within. No amount or kind of food possesses any healing virtue. Neither do drugs, baths, or anything in Nature but the patient's inherent Vital Force. Disease is Nature's process of cure, and will always be effective whenever the conditions for cure are supplied, and the Vital Force is sufficient. If the power is not sufficient, no external applications can make it



## The Nature of Disease

so. It may be accumulated, in many cases, by rest; it can never be supplied from without.

212. Unfortunately for the world, these are not the popular doctrines. Only because, as we believe, the subject of disease in its broad, general aspects, is seldom considered. Medical books by the thousands have been written advising treatment of diseases, but it is very rare that any consistent thought is given to the subject of diseases in general. We are glad to be able to note an exception. Among all medical writers, Professor John Hughes Bennett, Senior Professor, etc., University of Edinburgh, is the most philosophic and reasonable whom we have met. He discusses diseases in their general aspect and gives a theory of disease which is not only suggestive but exceedingly practical. He says, "Practice of Medicine," p. 346,—

"The notion that disease is a something which, having got in, requires to be driven out of the system,—is an enemy that we must attack, lay siege to, and conquer,—is one that largely prevails in the works of therapeutists. 'The intestinal canal is, in the great majority of cases, the battle-field where the issue of the most important disorders is decided.' (Hufeland.) 'We must introduce the only medicine of which we are thoroughly convinced that it possesses the power of efficiently striving with the enemy who, by subtle means, has now effected an entrance within our stronghold.' (Headland.) 'The whole of life is a perpetual struggle with an enemy to whom we must at last succumb.' (Stillé.) These expressions, however metaphorical, indicate the kind of operation sought to be carried out in treating disease. The active practitioner, like the victorious general, is more intent on driving out the enemy than in securing the safety of the fortress, which during the operations of both is too often greatly damaged, and not unfrequently levelled to the ground. But the truth is, in many cases what we call disease, instead of being an enemy, is our best friend. It should be regarded as the natural and necessary result of those injuries to which the animal economy is necessarily ex-

## Vital Science

posed. It is the effort made by nature to eliminate from, or reconcile the frame with, those noxious causes which have influenced it. If it cannot do this the vital force is exhausted. Our great object, therefore, should be, not to suppress, but to favor the natural operations of diseases, and conduct them to a favorable termination. If a sword is thrust into the flesh, should we suppress the pain, heat, redness, and swelling which result? No; for they are the evidence of those healthful changes, which, properly managed, will heal the wound. If the lung be inflamed, should we seek to check the dyspnoea, arrest the fever, and weaken the pulse? Again I say no. They are the proofs that the constitution is actively at work in repairing the injury and preparing the way for recovery. Neither can it be correctly supposed that life is a constant struggle with death. On the contrary, death is the natural termination of life; and so far from being an evil, can only be so considered when it is induced by violent or unnatural means."

213. Professor Bennett's remarks are certainly very suggestive, and, we are pleased to note, are true as far as they go. "In many cases," he says, "disease is not an enemy, but our best friend." This doctrine is so revolutionary that, no doubt, he hesitated to announce its full import. He might well have said, "In all cases" where a clear distinction is maintained between the disease, its causes, its occasions, and its results, "disease is our best friend." Unfortunately, these distinctions are never observed in medicine. It is one of the noteworthy facts of all speculative systems that definiteness cannot be obtained. The *occasions* of disease should always be avoided. These exist in any environment that is unfavorable to health. The *causes* of disease, like the *causes* of health, on the contrary, are the patient's vital power. The disease itself is the process by which this vital power removes the obstructions or heals the lesions that have been suffered.

## The Nature of Disease

Bennett well says, "It is the effort made by Nature to eliminate from, or reconcile the frame with, those noxious causes which have influenced it." Disease, therefore, illustrates self-preservation on the one hand, and the law of vital accommodation on the other. If elimination, due to self-preservative efforts, is impossible, accommodation is generally feasible; if both continue to fail, death becomes inevitable, "the vital force is exhausted."

Around this thought circles all vital existence. Vital Force is Life, an invisible principle of existence, appearing first in protoplasm, and, working through it, organizes, repairs, preserves, the vital organism. Health is Vital Force normally working because of reasonably favorable conditions; disease is the same Vital Force working abnormally because of abnormal or unhealthful conditions; while death is the absence of all function. Vital Force is a limited supply in every case, and death is the exhaustion of the supply. Even when death results from accident or violence it would seem that exhaustion is the real cause. For in all such cases the expenditure becomes rapid and violent beyond the capacities of the organism to replenish, as proved in most cases by intensity of function in some direction. Disease rapidly exhausts vital power and so often ends in death; that which produces disease—viz., prevailing medical treatment, based upon the theory that disease is an enemy to be destroyed, or an action to be counteracted or suppressed—occasions expenditure and even exhaustion of vital power even more rapidly than the disease does; and when the patient dies from the exhaustion of treat-

## Vital Science

ment added to the exhaustion of the disease, the undertaker unites with popular superstition to bury him out of sight.

214. Disease, therefore, is vital action, abnormal because of abnormal conditions, and is occasioned by anything which the organism dislikes sufficiently to war against. The first process is recognition of danger, injury or offence. But this being purely mental, is not generally recognized in Medicine. The first *observable* process of disease is well named *irritation*. This fact is everywhere admitted, and is itself proof that vital operations are mental in character. The organism in every case of disease becomes irritated either from threatened or actual injury or offence. Pleasant, agreeable, normal vital action is health; disease, which is abnormal vital action, follows unpleasant, disagreeable, or injurious occasions or conditions.

215. Here, again, we observe the elements of the great delusion to which we have more than once called attention in this volume. Irritation, it is everywhere admitted, represents increased as well as disturbed vital action; so that it often happens that the patient feels decidedly stronger and often better as the result of an oncoming disease. How often do we hear that the patient was feeling unusually well just before he was taken sick. He was feeling well because he was stimulated by the irritation of the incipient disease. The secondary effect—weakness—connected with the secondary processes of the disease not yet having taken place, the patient is wholly unconscious of his real condition.

In saying all this we are only calling attention to

## The Nature of Disease

the facts of disease which all intelligent physicians recognize. The following quotation from an erstwhile standard work ("Practice of Medicine") by the late Professor George B. Wood, of the University of Pennsylvania, confirms the views advanced. In describing the initial processes of disease, he says of irritation, "The first observable phenomenon . . . is an exaltation of the function in the part affected. If the excitement be moderate, there is merely an exaltation of the natural sensibility." "Sight, hearing, taste, smell, touch, become more acute." "When the muscular tissue is affected . . . the muscle will act more vigorously." "Digestion is also apparently invigorated under a moderate irritation. Hence increase of appetite." And that the secondary result is the exact opposite and altogether disastrous may be gleaned from the following: "To complete our general view of irritation it remains only to call attention to the secondary effects. These may be exhibited in the part immediately affected or in other parts of the body. In the former situation, after the subsidence of the irritation, a state of depression usually occurs, in which the functions are performed more feebly or are for a time suspended. The over-fatigued organ requires a period of rest before it can return to its ordinary duties."

How suggestive and yet how delusive are these facts! While the patient is getting sick his functions are more active and vigorous than usual. But when he is getting well they are suspended or are feebly performed. Disease, as Professor Wood well says, begins with irritation, which causes exaltation of func-



## Vital Science

tion, whereby the individual is deluded into the belief that he is growing strong and well at the very time and by the very means that his health is being destroyed. The condition is one of stimulation. All stimulants and tonics cause increased function because they are irritating or exciting in their nature, and tend to destroy health instead of recuperate it. Recovery, on the contrary, is being effected by rest and consequent reduced function of the organ or the organism as a whole. Thus the real is the exact opposite of the apparent. The man is being diseased when he imagines he is unusually well; he is often getting well when he imagines that he is getting worse. In these facts we have perhaps a more pertinent illustration of the truth of our Law of Effects than any that we have given illustrative of it. (§§ 177, 178.) Rest, like sleep, reduces function and restores health, for the reason that strength and vigor are the product of inheritance and come only through accumulation of power, which is secured by saving our vital income instead of spending it. If Vital Force were the product of food, drink, medicine, etc., rest and sleep would be unnecessary; more food would be the proper thing. The very fact that sleep is a primal requisite of life is proof that the power of life cannot be produced from without. Rest and recuperation, therefore, means reduced function, while work which may even end in exhaustion represents increased function. Whenever, therefore, a man, in the plenitude of his powers, becomes unusually ambitious and vigorous, look out for a crash. On the contrary, when he is dull, stupid, and inactive he is resting and recuperating. Three

## The Nature of Disease

times in our life the writer has been deluded in this way ; three times we have passed from unusual energy to almost helpless invalidism, and three times we have recovered health by processes which are usually conceived to be at least valueless, if not health-destroying. Inaction, weakness, and reduced function have proved to be processes of recovery because they are the evidence of rest. Disease, on the contrary, whether local or general, represents increased activity and vigor preparatory to exhaustion,—all of which confirms the conclusions already arrived at in Chapter II. and again in Chapter X., that we dare not trust to observation or experience, because the elements of delusion are always in us. Things are not what they seem ; they are generally the exact opposite of the apparent. “The just—or righteous one—shall live by faith ;” there is no other way to live and be right. Whoever would be successful in any department of human effort must rely confidently upon the great principles of truth and righteousness. “God and one are a majority.” “If thine eye be single thy whole body shall be full of light.”

216. We pass to the second stage of diseased action, Congestion. Wood says, “A phenomenon always present in local capillary irritation, whatever may be its seat, is an increased flow of blood to the part, and a consequent arterial congestion.” Congestion means “excessive accumulation,” a thing which can only occur because there is obstruction to the outward flow of blood. For if the blood could move forward as rapidly as it arrives there would be quickened circulation and not excessive accumulation. And this is

## Vital Science

the rule in case of general irritation, as from alcoholic stimulants, which being rapidly absorbed cause irritation in all structures. As long as all parts respond equally to the irritant there is general increase of function because of generally increased circulation, which begins to be reduced, however, as soon as the weaker or more sensitive parts fail to carry forward the increased flow. The blood now accumulates at some points beyond the power of the parts to appropriate or send it forward, causing deficiency of blood at other points, and consequently increasing loss of power in muscle, brain, and nerve, both from the congestion and the anæmia, constituting the inebriated state. For it is a remarkable fact that excess of blood in a part paralyzes its functions just as does deficiency of blood. And it is often a matter of importance to decide in case of sudden loss of function whether it is from congestion or anæmia, as, for instance, whether it is an apoplexy or a fainting fit, or possibly epilepsy, or the drunken state. A man faints and loses consciousness from loss of blood, but he has apoplexy with the same result from excess of blood in the brain. The much more frequent cause of loss of function in any organ, however, is congestion; and we proceed to investigate the nature of the obstruction which causes congestion.

217. For some good reason more blood is carried to a part than can be sent forward, causing that "excessive accumulation" which we saw is denominated Congestion. Why is the blood not carried forward? In the great majority of cases because the part or organ through which it must pass is unable to make the

## The Nature of Disease

proper changes in it. Circulation accomplishes two important and complementary objects, *nutrition* and *purification*, either of which would be useless without the other. Together these constitute the all-important functions of Life. The *prime* object of circulation is nutrition, which consists in supplying to the cells, or rather bioplasts of the cells, the prepared materials for their growth and development. This work involves the collateral function of purification, which is effected through the operations of the organs of excretion.

Nutrition occurs whenever arterial blood passes through the capillary or hair-like blood-vessels of a part, and becomes venous. The tissues through which it passes gain what the blood loses. During one moment we have rich, red, arterial blood passing through blood-vessels so minute as to reach every cell of the part, while the next moment this blood has become dark and impure, and appears now in the minute veins on its way back to the heart. The blood falls from a high to a lower level of life, while the structures through which it passes, rise correspondingly. This process of appropriation by the tissues, of the vital elements of the blood, so making it to become dark and impure, is the essential process of nutrition, all other processes being preparatory to this great object of feeding the bioplasm of the cell in order that it may build up the varied structures. The real process of nutrition, therefore, renders the blood impure, and so necessitates the collateral process of purification, in order to maintain vital function and development. This purification and revitalization of blood is effected by passing it through corresponding capillaries of

## Vital Science

liver, lungs, kidneys, skin, bowels. In the lungs it gains oxygen and gives off carbon dioxide ; in the liver it yields up certain biliary impurities that are to be poured into the bowels ; the kidneys excrete urea and other elements ; the skin exhales perspirable matters ; while the bowels receive from the blood a great deal of semisolid materials, constituted largely of the débris of worn-out structures.

As with the process of nutrition, so with purification, the work is done in the minute blood-vessels of the purifying organs by the bioplasm or protoplasm of the cell, rather than by the organ as a whole. The real workers in any organism, whether it be Church or State, are the individuals who make up the organism, and these in the physical organism are the cells, or rather the bioplasm of the cells. *The all-important fact to be noted is that, unless the proper change, in greater or less perfection, can be effected in the blood while it is passing through the capillaries of the general system, constituting the process of nutrition, and through the capillaries of the excretory organs, causing purification and revitalization, obstruction of circulation and consequent congestion and paralysis of function must follow.* The blood cannot pass through the lungs without being aerated, nor through the liver without losing its biliary impurities in some measure at least, nor through the kidneys without change. And still more certainly can it not be circulated through the capillaries of the general structures without yielding to them its vital elements, and so becoming venous. Thus the arteries and veins with capillaries between them make up the circulating vessels. In the latter, or



## The Nature of Disease

in immediate connection with them, all changes must and do take place by which the blood becomes first venous, and then arterial, each system of vessels existing for the other, and all together keeping up a continuous round of vital activity, illustrative of vital existence.

218. It is an accepted physiological fact, therefore, that all nutrition takes place in the capillary circulation. It is equally true that all purification and vitalization of blood takes place in the capillary vessels of the purifying organs. Unless these changes can take place in the blood as it is presented to the parts, it cannot pass through them either for nutrition or purification. And this is the true explanation of the obstruction and congestion taking place in any part or organ of the body. The condition is,—Too much blood for the limited nutritive or purifying power of the part. The liver can secrete only so much bile in a given case. If more blood is carried to it than it can change, congestion and loss of function necessarily follow. The liver is apt to be the first organ which suffers from surfeit, but as soon as it fails to pass the blood onward all the other organs, but especially the heart, become overburdened, and were it not for the wonderful resources of the living human organism death would come sooner than it does. The liver being congested, the portal circulation becomes loaded, the bowels obstructed, the kidneys overtaxed and congested (they try to do the work of the liver), and the labor of the heart is immeasurably increased. This is especially the case whenever the lungs fail to aerate the blood. The lungs may be too small for the work required, their membranes may be

## Vital Science

thickened as in bronchitis, or their air-cells solidified as in pneumonia; no matter what the condition, if the blood is not changed there necessarily follow congestion, stagnation, and further decrease of function, until the labor of the circulating organs, of which the heart is the principal, is doubled, trebled, or quadrupled. In such cases is there any wonder that the heart should begin to fail? Have we not here ample explanation of the heart-failures of pneumonia and Bright's disease? Under such circumstances shall we stimulate the heart? We have seen (§§ 176, 180) that all tonics and stimulants reduce as a permanent result the power of the part stimulated, so that the repeated use of heart tonics provide with great certainty for its surely coming failure and death.

219. But if we may not use heart tonics, what shall be said of administering fluid or predigested foods, peptonoids, plain or malted milk, every hour or two, that will be rapidly absorbed, and so load still further the already overburdened circulation? The heart fails from excessive work, due to the presence of more blood than it can circulate. And it fails to circulate it because lungs, liver, kidneys, fail to change it. Shall we then increase or reduce the quantity of blood? Or perhaps the general nutritive processes have been reduced to a low state of activity, so that nutritive changes do not take place, as shown by loss of appetite. The blood not being used, there soon becomes a great excess of it, and Nature wisely seeks to protect herself by cutting off the desire for food. Shall we compel the ingestion of the food, whether it can be aerated, changed and used, or not? Is Nature

## The Nature of Disease

a fool that we should force and abuse her? Or shall we, on the contrary, give stomach, liver, kidneys, bowels, an opportunity to relieve the blood of its impurities and so facilitate the circulation, and thus relieve heart and all other organs of their excessive labors. We agree that blood is the important prerequisite to life and vigor, but this is so only when it can be properly purified and circulated. A portal circulation loaded with nutritive material that cannot be changed in the purifying organs, nor appropriated from the general capillaries, is a dangerous condition; and every ounce of blood added to the sum total increases the danger. The loss of appetite, weakness, etc., of which the patient complains, is due to the presence of more blood than the organs can purify or the general system use. No matter if the quantity of blood is very little, the power of the nutritive and purifying organs is still less. Shall we increase the quantity of blood or reduce it? Shall it be rich, concentrated, and highly stimulating food and drink, thereby increasing the obstructions, or shall it be massage, bathing, rubbing, and other simple yet effective appliances to restore balance to the circulating fluids? We are not advocating a return to the bleeding and purging processes of the schools, but we do assert that the increasingly numerous deaths from heart failure are chiefly due to heart tonics in connection with stimulating and stuffing processes. We would give the heart rest by giving liver, kidneys, bowels, lungs, stomach, corresponding rest, and so by saving the patient's inherent forces also save his life.

220. But how shall we give these organs rest? Not,

## Vital Science

as we have seen, by bleeding and purging. For the relief by these means is only partial and temporary, the reaction bringing increase of labor instead of rest. Bleeding, while immediately reducing the quantity of blood, causes increased activity of the blood-making organs,—viz., stomach, liver, bowels, lungs,—and so increases the amount of blood in the reaction not only, but increases the labor of the organs. Purging does the same directly as well as indirectly.

There is but one effective and scientific way to secure rest to the vital organs, and, therefore, to the organism as a whole, and that is to stop working them. What is the work of the stomach? To digest food. What is the work of lungs and liver? To make changes in this food after it has been absorbed into the circulation. What the work of kidneys? To secrete from the blood and carry out from the organism certain elements derived from this food. And what is the work of the heart but to pump the blood made from this food. What insanity, then, to compel all these organs to make the blood only that a vein may be cut open and the blood wasted! If there is too much blood, why not stop making it? If bleeding and purging proved to be such wonderfully effective agents of relief, why not equal relief be secured by simply ceasing to eat, and so rendering unnecessary the plan of purging out the humors? It were enough to make a horse laugh to see how medical theories pander to popular appetites. Bleed, purge, and poison the patient,—do anything and everything, but don't tell him the truth; don't tell him to "cease to do evil and learn to do well;" don't correct his habits.

## The Nature of Disease

But is it true that bleeding and purging ever proved effective to the patient's relief? Can we conceive that our fathers were too ignorant to observe the simplest facts? How did we, their children, become so wise? Bleeding and purging gave relief to our fathers just as toning and stimulating gives relief to our brothers,—viz., by permanently producing the very ailments they temporarily relieve. Then the result was blood and bowel diseases; to-day it is nervousness, neurasthenia, insanity. Our wise doctors sow the seed and we reap the harvest, and each after its kind.

Disease, therefore, consists of obstructed vital action, plus the efforts of the vital system to avoid and remove the obstructions and heal the lesions. To say that disease is abnormal vital action is to give a definition that cannot be successfully controverted. We may carry the definition a step farther and say that it is Remedial Vital Action,—a vital action in which the effort to remedy existing conditions is a leading thought. Even further than this we may carry the thought to the assertion that Disease is Nature's process of cure. Inflammation is the most frequent and general of diseases, the great representative of all diseased action, and every surgeon knows that inflammation is Nature's healing process. And the inflammation of Surgery is not essentially different from any other inflammation.

The true object of medical, or more properly health, treatment, therefore, is to cure the patient by conducting the disease to a "favorable termination," and this is best effected by supplying the conditions for good health. Nature does the rest.



## CHAPTER XIII.

### THE LAW OF CURE.

“Looking, therefore, at the discrepancy which exists between systematic teachings and writings on the one hand, and the actual practice in our hospital wards and in private on the other, as to the employment of the *materia medica* in disease,—regarding also the differences of opinion which exist among practitioners of the highest respectability and experience, it will be admitted to be a difficult task to determine what positive knowledge we have of the value of drugs.”—“Practice of Medicine,” by PROFESSOR JOHN HUGHES BENNETT, of the University of Edinburgh.

221. Is there such a law? The thought has grown into a conviction not easily eradicated from the human mind. Medicinal operation has long been supposed to be a special provision of Nature to meet a special requirement of Nature. As Nature produces diseases to afflict humanity, so it is imagined she has provided remedies for the cure of these diseases, and has thus given scope for the development of genius in discovering and applying the remedies. For ages man has continued to believe in the curative *powers* of morbidic agents,—of deadly poisons,—of anything and everything that experience has proved to be destructive to life and health. It seems strange that imagination has never clothed healthful agencies with this mysterious virtue. Only that which destroys health is supposed to be capable of producing health by curing disease. If we inquire for the explanation of

## The Law of Cure

this paradoxical thought, the only reply is, "It is a fact of observation, which though unexplainable, is nevertheless as certain as any other fact of science." (§ 18.) We believe our principles have already explained many otherwise insolvable problems, and unless they are equally successful with this one we shall not feel that we have fully succeeded.

222. The solution of this problem necessitates once more the consideration of what we have repeatedly shown to be a great fact, that every result in Nature involves the existence of two necessary elements,—the *cause* and the *occasion*. The *cause* is correctly defined as "*the power by which a thing is,*" while the *occasion* constitutes the condition which calls forth the power,—the incentive which "leads to" or "induces" the operation of the cause. These together, existing at opposite extremes, the one internal and the other external, combine to produce all results, the very opposite results (§ 85) often flowing from the same *cause* in answer to changed conditions. We need not repeat illustrations which are found in great numbers in §§ 72, 73, 74, 101, 126, but will simply say that the power which performs any function, or produces any result in any living organism, is the power within the organism, while the *occasion* for the action is derived from without. The power of disease like the power of health is inherent and intrinsic, while the occasion for its exhibition—the condition for its expression—is extrinsic, making Life and all the processes of Life to be evolutionary, the outworking of internal forces, and not involutionary, the inworking of external forces. (§ 36.)

223. In the living world these constituent elements,

## Vital Science

as we have seen, are summed up in two exceedingly expressive terms, Heredity and Environment. (§ 33.) Heredity is the source of the power,—of all power,—while Environment, or external agency, constitutes the occasion which determines the form and manner of its expression. (§ 101.) Power, therefore, being hereditary, is inherent in the nature of living things just as truly as it is inherent in material things. Who is declared to be “before all things and by whom all things consist” is equally asserted to be “the first-born of every creature.” From which we infer that even the worlds are the product of Heredity. The power being unchangeable and its laws invariable, in the living as well as in the non-living, illustrates the Source whence they come. The Environment, on the contrary, undergoing constant change, necessitates a corresponding change in result, subject, however, in the living world to a Law of Vital Accommodation. For example, Chemical Affinity is the power of gunpowder, stored in its elements, but whether we shall continue to have gunpowder or an explosion depends upon conditions, occasions, external appliances. If the explosion occurs, its power did not reside in the spark that occasioned it, but in the gunpowder itself. Just so the power of health is the power of disease, and both are the power of life, but whether we shall have health or disease depends upon the conditions,—the Environment. If pain, vomiting, purging, or any other symptoms follow the administration of a dose of medicine, the power is not supplied by the medicine. It was already inherent in the organism. So if medicine seems to produce any other effect, it is only the *occa-*

## The Law of Cure

*sion* or *condition* for the effect, the vital power being itself the *cause*. The power of vital action is vital power, the law of vital action is Self-Preservation, while the peculiar form of the action is determined by the occasion or condition which induces it. With healthful environment we shall continue to have health; with an unhealthy environment we begin to prepare for disease, which is sometimes precipitated in precisely the same way that a chemical explosion is precipitated,—viz., the power being inherent and the general conditions being already present, the explosion or the disease may occur under the application of the slightest incentive, such as a draft of air, exposure, a fall, a purgative, emetic, or other swallowed drug.

224. As, therefore, there are at least two necessary elements in the production of disease as well as of any other result, which elements are directly opposed to each other, so there are two opposing methods of curing or stopping diseases. The one method deals directly with the *power* and only indirectly and incidentally with the Environment; the other deals directly and primarily with the Environment and only indirectly and secondarily with the power. In other words, the one plan seeks to change or remove the *cause* of the disease, that is, the power on which it depends. But as this cause or power is the patient's vital power, any one can see a grave element of danger in the practice. He can also see why poisons or "positive morbidic agents" are the most effective, if not the only, agencies for this purpose. This may well be called the positive plan of dealing with and destroying what eminent authority has characterized as "our best friend."

## Vital Science

The other plan is the negative plan. Its leading thought is, "Cease to do evil." It removes the conditions of the disease and supplies the conditions for health, and leaves the patient's vital forces to the performance of their legitimate duties. It is a plan which is both intelligent and effective. If we supply the conditions for health we will have health; if we remove the occasions for the disease the disease will cease.

The former plan is admitted to be based on ignorance of the nature of disease. No one of its practitioners pretends to understand its nature. (§§ 204, 205, 209.) It is agreed on all hands that the subject is too abstruse to admit of intelligent consideration. But it is the easy plan especially for the physician. Ignorance being bliss, it is folly to be wise. It seems at first also to be easy for the patient. It requires no self-denial, which is itself a great element of popularity. Its votaries do not need to worry themselves about their health any more than about their salvation. All they need to do is to hire some one to attend to that matter for them, while they "eat, drink, and are merry." Poisons and penances take the place of truth and righteousness. "Our most violent poisons are our best remedies," says Professor Martyn Paine. Every disease that ever afflicted a human being is curable by their use provided they are used in sufficient dose. The power of disease being the patient's vital power, it is evident that the violence of the disease may be reduced by whatever will reduce or destroy the patient's life. And when the patient dies it is not known that the result is the legitimate effect of thus curing the disease. We are not the only phy-



## The Law of Cure

sicians who have observed that antipyrine, for instance, has too often stopped a fever by stopping the patient's heart-beats.

225. It is entirely possible, therefore, for the cure to be worse than the disease. "We do but substitute one morbid action for another; Nature does the rest," says Professor Martyn Paine. And this is the reason why "Our most violent poisons are our best remedies." The original disease is stopped, because the vital energies are diverted to other work, or are so reduced by the poison that they cannot continue the peculiar operations. But is the patient cured? He may be encouraged by the cessation of the symptoms which have alarmed him, and when a new set of symptoms appear, a new disease is diagnosed. Whence did it come? No one seems to know, but the physician nevertheless proceeds to employ other remedies. The original disease was cured by the substitution of another disease. But who will say that this substitution has cured the patient or even improved his conditions? Will a substituted disease of less violence silence, cover up, or cure a greater one? Can the less include the greater? As a matter of fact, it is common enough for the symptoms of an ailment to be masked or swallowed up in a more serious affliction. We easily forget our petty troubles in the presence of some great calamity. If prevailing medical treatment, based upon the theory that disease is an enemy at war with our vital organism, consists in thwarting its operations, it can readily be seen, if our principles are true, that the result will be chronic or prolonged instead of acute ailment. If disease is a condition caused by

## Vital Science

vital power operating against injurious agents or conditions, and so is a process of cure, and the Doctor steps in to stop the process, it is evident that a subdued, prolonged, chronic condition of ill health remains, provided always that the patient has survived the treatment. The facts justify the theory. This United States of America has a world-wide reputation for two things: First, an immense army of chronic invalids, and, second, a corresponding army of physicians. Which is cause and which effect? Statistics show that America has five times as many physicians according to population as has Continental Europe, and three times as many as Great Britain, while the chronic invalids are correspondingly numerous.

But it is an even more suggestive fact that the prevailing diseases always correspond to the prevailing treatment. While purging and bleeding were the accepted methods, blood and bowel diseases were alarmingly frequent, but when the methods underwent a revolution, and nerve stimulation took their place, blood and bowel diseases began to subside and nervous diseases have become equally prevalent. Again we inquire, which is cause and which effect? It would seem that the old German's bill rendered to the sorrowing husband for services to his deceased wife, couched in the words, "To curing your wife till she died, 10s.," was a truer statement of fact than he suspected.

226. But it will be claimed that this description is greatly overdrawn, because no wise physician would administer medicines in dose large enough to destroy the patient's life. Of course not. No one doubts that it is the physician's duty, while administering to the

## The Law of Cure

patient deadly agencies, to be careful that the dose is so diminished that the vital powers react, and become more instead of less vigorous. Medicine in the proper dose increases instead of diminishes the vital energies, and should therefore cure the disease by invigorating the patient. If the medicine were the *cause* instead of being only the *occasion* for the increased action; if it gave to the patient increased power instead of only called out the power, we could readily agree that its use is both curative and life-sustaining. But when we reflect that increased energy always means reduced force, the subject soon comes to have another aspect. All violent applications arouse vital activity and exhibit vital power, whether it be the cry of fire at midnight or the dose of whiskey at mid-day, the highwayman's command or the burglar's blundering presence; whether it be arsenic or strychnine, quinine or calomel, no matter what it is that threatens injury or death, it arouses vital activity and expends vital power, and cures the disease, if it cures at all, by destroying or diverting the power on which it depends.

227. How large shall the dose be? is a question of surpassing interest, more especially in that it involves a consideration of the principles of the opposing schools, the Regular and the Homœopathic. Do they have any principles? We believe the regular school makes no claim in this direction, but bases its practice wholly upon the results of experience. With three thousand years of history to draw upon, it cannot be doubted that it is well-equipped in this respect. But when we reflect that in all this time each generation has been engaged in overthrowing the practice of its

## Vital Science

predecessors, it becomes itself the best evidence of the untrustworthiness of experience. The Homœopath also urges "actual experience as the only infallible oracle," but nevertheless claims to administer medicines in accordance with the "Law of Similars," the discovery of which is properly credited to a noted physician and chemist of the last century named Samuel Hahnemann. In accordance with this theory diseases are to be cured by the use of such positive morbid agents as are calculated to produce an exactly similar set of symptoms in a well man.

228. The chief manifest difference, however, between these schools is the size of the dose. The Regular physician administers doses from one to ten or even ten or a thousand million times larger than the Homœopath does. Indeed, we believe the difference to-day between these opposing schools of medicine resides chiefly in this matter of dose. But the size of the dose seems to grow unconsciously out of the theory of administration. The Homœopaths have a theory which they announce and defend. The Regulars have no theory that they are prepared to stand by, but continue simply to administer drugs to whomsoever wants them because it is a habit long acquired and not easily relinquished. In accordance with the homœopathic theory diseases are to be cured by the use of such positive morbid agents as are calculated to produce a similar condition in a well man. But let it be noted that the disease is to be similar, not the same. How similar? The authorities say, "As similar as possible." The Regulars also administer positive morbid agents in accordance with the teachings of the Alma Mater,

## The Law of Cure

and these are supposed to be based upon experience. Whose experience we are not told. Undoubtedly the experience of nobody in particular but of everybody in general. But as new remedies are being hourly invented and promulgated, and immense sums of money are being expended in advertising them to the profession, we are warranted in conceiving that great numbers of experiments are being made upon credulous people who are ever willing to offer themselves as subjects. That many of these experiments prove fatal is neither doubted nor denied, but of course it is always "the other fellow who did it."

229. Whether in homœopathy or allopathy, there is evidently large latitude for the display of the genius of empiricism in the administration of medicines. Homœopathy like allopathy is based upon the supposed curative power of drugs,—some mysterious virtue which no man can explain,—so that it contents itself with pointing to the fact of cure as evidence of the curative power. But this is really no evidence at all. Professor Samuel J. Armor, of Long Island College Hospital, was right in saying, "Drugs are administered and patients recover, but whether because of our medicines or in spite of them it is impossible to say."

There is and must be some true explanation of all the facts of medicine. Hahnemann's law has an existence and a value. But our principles show that it is not a law of medicine at all. It is a law of life, operative wherever life is. It is more. It is the law of success in every department of Life. We discover this law in the Golden Rule, which teaches that we are to get what we give. The paradoxes of Scripture are based



## Vital Science

upon it, especially, "Give and it shall be given unto you." He that would save his life shall lose it." "He that exalteth himself shall be abased." "He that deserts houses and lands for my sake shall receive manifold more in this present time." So Hahnemann conceived that morbid conditions could be cured by morbid substances. But he had no correct notion of the process by which the result is secured. He gave the medicine, and experience showed a mitigation of symptoms and often complete cure. Unfortunately, the result is far from invariable. But when the practice is contrasted with that of the opposing school the results are so much in favor of Homœopathy that, in spite of the paradoxical nature of its teachings, it is rapidly supplanting previous methods. Hahnemann very clearly perceived that all vital manifestations, whether in health or disease, are the result of Vital Force, and he had some indistinct notion that Vital Force is somehow connected with self-preservation (*Organon*, § 10), and he proceeded to expose the fallacy of the dominant theory that disease is "a material thing hidden within" (*Organon*, § 13), and to establish in its place the great truth that it is the product of an invisible, intangible force, the very force that animates, produces, repairs, and maintains in existence the living organism. "Diseases are produced only by the morbidly disturbed vital force," he truly says. But he very improperly asserts, "Neither can the physician free the vital force from any of these morbid disturbances—*i.e.*, diseases—except likewise by spirit-like, alterative powers of the appropriate remedies acting upon our spirit-like Vital Force," etc.

## The Law of Cure

230. We are very sure that Hahnemann, great as his discovery was, missed the true theory of cure. Medicine has no spirit-like power. It has not even natural vital power. It is a material agency that may arouse vital activity and call forth vital power, but it never healed a broken bone nor cured an irritated nerve. The only power that can cure is the power that preserves. The power that preserves is the power that produced. Vital power alone performs vital work, whether the work be production, preservation, or repair.

Disease is vital work under direction of the instinct of self-preservation, and is laborious and often painful, but it is, or may be, curative all the same. Medicines which are destructive to the vital forces, and especially if they are positively so, can and do divert the vital energies from this work and so stop the disease. In popular parlance the disease has obtained a firm grip on the patient, which grip it may be made to let go by some positively destructive agency from without. The patient is relieved by the diversion, and if it be not too complete and radical, he may be benefited. But to divert the energies so as to stop the process of cure, it can readily be seen, is destructive, leaving a chronic in place of the acute disease. But if a very mild or moderate diversion is secured, complete recovery may be effected. This is due to the fact that there are usually two elements in every case of diseased or curative action: First, injury; second, fear. The fear is always present, and often produces disease even when the injury is only threatened. It is this fear that is chiefly at the bottom of most abnormal vital action, making the

## Vital Science

action to be unduly painful and arduous. This truth is based on the fundamental law of this work, that "every particle of living matter is endowed with the instinct of self-preservation," and is consequently capable of fear as well as of suffering. Fear is perhaps the most important element in every disease ; and sometimes the only element, as medical literature well shows. Curative attempts by the vital forces are, therefore, often made when there is nothing to cure, and even when injury has been suffered, the attempts at cure are liable to be excessive, and to prevent success by their own violence. To mildly divert the vital instincts will in all such cases not only prove comforting but beneficial. Let us take as an illustration a wound, bruise, or sprain. In all these cases there is, and should be, increased vital activity in order to cure, but this activity being aggravated by fear (and every injury causes fear) becomes excessive, causing accumulation of nutritive material in the injured parts greatly beyond their power to use it. The result is abnormal heat, swelling, pain, etc., which every one should know will be greatly relieved and the cure quickened by stimulating the circulation and promoting absorption, and this is greatly facilitated by diverting the vital energies. If the appliances used for this purpose are soothing to the parts, as, for instance, water, hot to relax, followed by cold to stimulate, the circulation and nutrition, the results will be curative. If, on the contrary, irritating appliances are used, such as blistering, leeches, etc., the cure is made to be worse than the disease. Rubbing and manipulating the parts so as to divert blood from the wound is

## The Law of Cure

also very beneficial. Narcotic appliances which deaden the sensibilities are improperly used. But whatever the appliances, the object should be to quiet the excitement, allay the fears, stimulate the nutrition, and divert the energies, so as to allow the curative process to proceed as quickly and with as little suffering as possible.

What is true in this respect of local diseases is true of those which are general. In every case the injury, commotion, suffering, is aggravated by fear when not produced by it, making treatment to quiet and soothe to be always in order. What treatment will best do this? That which most nearly reaches the suffering parts, provided it be mild enough. How do we know which are the suffering parts? And having discovered them, how do we know what medicine will most nearly reach them. The suffering parts are known by the symptoms, and the medicine which will reach these parts is medicine that will produce similar symptoms. The medicine which produces a set of symptoms most nearly like those from which the patient suffers is the medicine indicated, and the results have for a hundred years justified the theory, and a *materia medica* based upon this principle is in constant use by large numbers of practitioners. We are not to use a medicine that will produce the same symptoms, for this would aggravate the disease. Nor must the dose be too large, for the same reason. Indeed, a large dose would be liable to produce aggravation even if its symptoms were similar. But a mild dose to produce similar, but not the same, symptoms will often prove a great comfort and relief, perfectly

## Vital Science

analogous to the gentle rubbings that so often give comfort to inflamed and suffering parts.

231. But suppose we give a dose that has no relation to the disease, produces no symptoms like those of the disease, but, on the contrary, produces symptoms entirely different, or perhaps opposite to those which afflict the patient. How large will such a dose need to be in order to relieve the suffering parts? Evidently a dose large enough to arouse the whole organism, and so affect the suffering parts by affecting all parts. Such a dose must be destructive to a high degree, not only because of its disturbance of the whole vital system, but because of its size and quality. A comforting and curative dose must be so small that it will mildly divert but not stop the vital operations, and must be capable of producing symptoms so nearly like the symptoms of the disease that the healthy tissues will not need to be aroused. For illustration: an excellent treatment for a boil or wound consists of gentle manipulation of the parts contiguous to the sore, and only as vigorously as experience shows will give relief. If the manipulations are violent, the suffering will be increased, and healing prevented. If the parts manipulated are far distant from the diseased structure, there will be no appreciable effect, unless the process is an extremely vigorous one, and even then injury is quite as liable to occur as benefit. It is evident from all these considerations that the size of dose sufficient to give relief and aid the processes of cure depends upon how nearly it answers to the symptoms of the disease. Allopathic doses suggest the law of *contraria*, and because they are contrary, the dose



## The Law of Cure

must be large enough to arouse all the vital energies, no matter what their relation to the disease. The infinitesimal dose, on the contrary, is clearly adapted to diseases whose symptoms are similar to those which the disease would produce.

232. We turn now to a consideration of the negative but natural and successful plan of curing diseases. The plans we have been discussing are well considered to be positive, necessitating the use of positive morbidic agents. These plans are based upon the theory that deadly poisons have curative virtues; but this theory involves a confessed ignorance of the nature of disease. Notwithstanding this confessed ignorance, however, they agree in considering disease to be "an enemy which we must lay siege to and conquer." What could better conquer disease than deadly poisons, provided the disease is chiefly made up of the patient's vitality. It is because we have proved disease to be Nature's process of cure, which "should be conducted to a safe termination," that we advocate the negative plan of curing patients. "Cease to do evil and learn to do well" is the all-including prescription. If one would avoid or cure disease he must stop doing those things which must be remedied. Disease is a curative process; such a process will never be needed if no occasion for it exists. Disease is often an extra process of house-cleaning,—la grippe; if the cleaning is carried forward daily and hourly the extra process will not be needed. It is only in cases of emergency or exigency that disease should occur, and then it should never be thwarted or destroyed. Disease is laborious and often painful work; let the vital

## Vital Science

powers be conserved and the treatment be soothing instead of irritating. Disease is "often our best friend;" we should not compel it to let go its work by counter-irritating appliances.

233. Health by living healthfully is the true idea. "Cease to do evil and learn to do well" is science, philosophy, and religion all at the same time. The provisions of Nature for physical redemption are just as complete as are those of grace for spiritual redemption. Indeed, an important part of Christ's work was to "heal the sick." The power that produced is the power that cures, and the process in every case is a process of reproduction. How absurd to concede that an invisible something, usually called a vital principle, has the power to build an organism, and yet has not the power to preserve that organism! If the organism has suffered injury from accident or incident, is it not equally absurd to conceive that the power that first produced it cannot repair it? Is it not an even greater absurdity to conceive that an agency which is utterly destructive to the life-forces is necessary in order to preserve these life-forces? If a living principle within were necessary to produce the machinery of life, how should inert materials from without repair the machinery? The fact is, nobody who has any knowledge of the subject pretends to any such nonsense; medicines are supposed to cure diseases in some mysterious way which physicians do not attempt to explain, a fact which makes the system to be a confessed superstition; not a science at all.

The power, therefore, that produced the living organism preserves that organism, repairs its lesions,

## The Law of Cure

does whatever is done. Health is the process of normal growth; disease is a process of abnormal growth. Health is healthful action in response to healthful conditions; disease is unhealthful action due to unhealthful conditions. But the action is always self-preservative, due to the one force under control of the one law.

234. As already noted, these are not pure theories, but have been applied in a practice extending over a period of thirty years with a success which no observer can dispute. Of our own practice we need say nothing, but will call attention to one man who in his day enjoyed a remarkable experience with no-medicine methods. And though we cannot agree with him that nothing but nursing is to be done for sick people, we nevertheless fully endorse his thought that between the no-treatment system and the prevailing methods, the choice must ever be in favor of the former. We condense from "The Philosophy of Human Life," by Dr. Isaac Jennings, the following:

"My début in Medicine was made under the flag of Cullen. . . . Wrong action and wrong condition were the things to be righted. . . . With the early part of my practice I was well satisfied. Diseases seemed to quail before the power of medicine as by magic. . . . It was not long, however, before I began to suspect that something was wrong. A number of causes conspired to shake my confidence. In the fall of 1822 my confidence in medicine for the cure of disease in any shape, . . . if not destroyed, was, at least, suspended until I could get more light on the subject. The two following cases were mainly instrumental in inducing this attitude.

"Mr. Isaac Treat, aged thirty-five, good constitution, farmer, sickened with typhus fever. . . . Among the urgent symptoms were great prostration of strength, uneasiness, pain and soreness in chest, difficult breathing, which, having failed to relieve, Mr. Treat inquired of us

## Vital Science

whether he might take brandy. He felt it would do him good. We objected from the conviction that alcohol was contraindicated, but failing to relieve him, we yielded to his importunities. The first drink of brandy seemed to be 'just the thing; it went right to the spot,' as he expressed it. It acted like a charm in making him appear and feel like a new man. For eight or ten days the brandy held sway, and all other medicines were laid aside. It was found necessary, however, to increase very considerably the quantity of brandy to obtain the same relief, and in the course of three or four days he was taking at the rate of two quarts of old and very strong brandy in twenty-four hours. At length this potent remedy lost its influence, its very name was loathed by the patient, and it was discontinued.

"We had nothing now by which we could rally the vital forces. Our patient soon fell into a death-like coma or stupor, entirely insensible to all that was passing around him; the extremities grew cold, pulse failed at the wrist, the bowels became tympanitic, the power of swallowing was suspended, and hope departed. These symptoms continued with slight temporary improvements for three days, when, to the great joy of friends, reanimation commenced and went very gradually but steadily forward to recovery. In the convalescence no medicine of importance was used. We depended upon good nursing.

"The second case was that of Mrs. William J. French, which occurred at the same time at the opposite end of the town. The most distressing and alarming symptoms were great prostration of strength, extreme irritability of stomach, with constant inclination to vomit. In spite of all remedies the patient grew worse. Calling one morning about the fourth day, I was greatly alarmed at her distressed and dejected appearance. I inquired of the nurse what best seemed to agree with her stomach. The answer was, nothing but water, which stays on the stomach, and nothing else would. My mind was soon made up to a prescription for that day. I took a promenade in the field where there was a fine spring of pure, soft water, took a vial from my pocket, washed it clean and filled it from the spring, and returning to the house, I gave a strict charge that nothing but four drops, in a teaspoonful of water directly from the well, should be given her once in four hours. She might drink water at pleasure, but nothing else must be given her.

"That evening on calling at the house I was informed that the drops were just the thing. The patient slept, had no more nausea, and had passed a comfortable day.

## The Law of Cure

"This case gave me no further trouble. The drops, with a little other placebo medicine, finished the cure, as far as medicine was concerned."

But we will not weary the reader with further details. Suffice it to say that after twenty years' practice with the usual remedies, Dr. Jennings began a system of bread pills and colored water, which he continued another twenty years, and enjoyed a great success as a physician who cured his patients. Thereafter as an old man he came out boldly and announced his views and gave no medicine, and continued in the confidence of the community (Oberlin, Ohio) for twenty years longer. "Nature cures and the Doctor takes the fees."

The Law of Cure is the Law of Effects, and this is the Law of Success in every department of vital existence. It is the delusive nature of effects that has bewildered and duped humanity for ages.

This subject will be continued in a succeeding volume, in which the processes of Healthful Living will be explained, and rational and successful measures indicated for the treatment and cure of all diseases. Organic and heretofore incurable ailments have been proved to be entirely amenable to measures based upon the principles here set forth, while the ordinary, functional diseases of people, such as typhoid, pneumonia, la grippe, diphtheria, and the like, are proved to be very simple affairs and rarely fatal.

THE END.



02791













WERT  
BOOKBINDING  
MIDDLETOWN, PA.  
MAY '74  
We're Quality Bound

QH W233v 1899

60841790R



NLM 05032386 2

NATIONAL LIBRARY OF MEDICINE